Impact of the Supporting Physical Activity in the Childcare Environment (SPACE) intervention on preschoolers' physical activity levels and sedentary time: A single-blind cluster randomized controlled trial [1]

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Excerpted from abstract

Background

Physical activity levels among preschoolers in childcare are low and sedentary time high. The Supporting Physical Activity in the Childcare Environment (SPACE) intervention had three components: 1. portable play equipment; 2. staff training; and, 3. modified outdoor playtime (i.e., shorter, more frequent periods). This study aimed to examine the effectiveness of the SPACE intervention on preschoolers' physical activity levels and sedentary time during childcare hours (compared to standard care).

Methods

Via a single-blind cluster randomized controlled trial, 338 preschoolers (39.86 ± 7.33 months; 52% boys) from 22 centre-based childcare facilities (11 experimental, 11 control) were enrolled. Preschoolers wore an Actical™ accelerometer for 5 days during childcare hours at baseline, post-intervention, and 6- and 12-month follow-up, and were included in the analyses if they had a minimum of two valid days (5 h each day) at baseline and one additional time point. Intervention effectiveness was tested using a linear mixed effects model for each of the four outcome variables (i.e., sedentary time, light physical activity [LPA], moderate-to-vigorous physical activity [MVPA], and total physical activity [TPA]). Fixed effects were further evaluated with t-tests, for which degrees of freedom were estimated using a Satterthwaite approximation.

Results

One hundred and ninety-five preschoolers were retained for analyses. The intervention did not significantly impact LPA. MVPA was significantly greater among children in the experimental group when comparing post-intervention to pre-intervention, $t(318) = 3.50$, $p = .0005$, but no intervention effects were evident at 6- or 12-month follow-up. TPA was significantly greater for children in the intervention group at post-intervention when compared to pre-intervention, $t(321) = 2.70$, $p = .007$, with no intervention effects evident at later time periods. Finally, sedentary time was significantly lower among preschoolers in the experimental group when comparing post-intervention to pre-intervention, $t(322) = 2.63$, $p = .009$, with no significant effects at follow-up.

Conclusions

The SPACE intervention was effective at increasing MVPA and TPA among preschoolers, while simultaneously decreasing sedentary time. The ability of the SPACE intervention to target higher intensity activity is promising, as MVPA levels have been documented to be low in centre-based childcare. The changes in physical activity were not sustained long term (6- or 12-month follow-up).

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