

Impact of PE Physical Activity Levels on Percent Body Fat: Examined against Healthy Fitness Zone

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Purpose: To examine how two PE programs with contrasting moderate to vigorous physical activity (MVPA) levels impacted students' percent body fat (%BF) differently in relation to FITNESSGRAM Healthy Fitness Zones (HFZ) during a three-year period. **Methods:** Participants were 96 students (46 boys) at a PE4life Academy middle school (S1) and 74 students (34 boys) from a same-area middle school (S2) with a traditional PE program. Two schools were comparable in PE class time, socioeconomic status, and race composition. The %BF derived from triceps and calf skinfolds was assessed at the beginning of the cohort's 6th grade (baseline) and the end of 8th grade (follow-up). Based on the criteria of the HFZ for %BF, the cohort was grouped into at-risk or HFZ groups at the two test points respectively, and changes in percentages of students in these groups across three years were compared between S1 and S2. Paired-samples t tests were used to examine within-school changes in %BF. Also, students' MVPA in PE classes were coded for 43 lessons in each school with System for Observing Fitness Instruction Time and analyzed with one-way MANOVA. **Results:** MANOVA yielded a significantly larger percentage of MVPA time in PE classes in S1 than in S2, 64.28 ± 7.65 vs. 41.7 ± 7.38 , $p < .001$. Paired-samples t tests indicated that S1 boys reduced their %BF significantly, 24.23 ± 10.26 at baseline vs. 20.1 ± 11.16 at follow-up, $p < .001$, but a significant increase in %BF was found for S2 girls, 24.66 ± 6.93 vs. 27.34 ± 8.93 , $p < .01$. Also, the number of at-risk boys in S1 decreased by 26.6% and that in HFZ group increased by 12.9% across the three years, whereas S2 boys did not change in the at-risk or HFZ group in number. As for girls, while numbers of at-risk girls in both schools increased, S1 had a much smaller increase rate (10%) than S2 (50%). **Conclusion:** Relatively large amount of MVPA in PE classes impacts positively on students' %BF in relation to FITNESSGRAM HFZ, especially for boys.
