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Physical activity patterns and estimated daily energy expenditures in normal and overweight tunisian schoolchildren

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ABSTRACT

Our aim was to test the normality of physical activity patterns and energy expenditures in normal weight and overweight primary school students. Heart rate estimates of total daily energy expenditure (TEE), active energy expenditure (AEE), and activity patterns were made over 3 consecutive school days in healthy middle-class Tunisian children (46 boys, 44 girls, median age (25<sup>th</sup>-75<sup>th</sup>) percentile, 9.2 (8.8-9.9) years. Our cross-section included 52 students with a normal body mass index (BMI) and 38 who exceeded age-specific BMI limits. TEE, AEE and overall physical activity level (PAL) were not different between overweight children and those with a normal BMI [median values (25<sup>th</sup>-75<sup>th</sup>) 9.20 (8.20-9.84) vs. 8.88 (7.42-9.76) MJ/d; 3.56 (2.59-4.22) vs. 3.85 (2.77-4.78) MJ/d and 1.74 (1.54-2.04) vs. 1.89 (1.66-2.15) respectively]. Physical activity intensities (PAI) were expressed as percentages of the individual's heart rate reserve (%HRR). The median PAI for the entire day (PAI<sub>24</sub>) and for the waking part of day (PAI<sub>w</sub>) were lower in overweight than in normal weight individuals [16.3 (14.2-18.9) vs. 20.6 (17.9-22.3) %HRR, p < 0.001 and 24.8 (21.6-28.9) vs. 26.2 (24.5-30.8) %HRR, p < 0.01], respectively. Overweight children allocated more of their day to sedentary pursuits [385 (336-468) vs 297 (235-468) min/d, p < 0.001], and less time to moderate physical activity [381(321-457) vs. 460 (380-534) min/d, p < 0.01]. Nevertheless, because of the greater energy cost of a given task, total and active daily energy expenditure did not differ from those with a normal BMI.

Key words: Heart rate monitoring, activity patterns, energy expenditure, excess weight, obesity.

Key Points

- The physical activity intensity for the entire day (PAI) and for the waking part of day (PAI) were lower in overweight than in normal weight individuals.

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