

Relationship of Objective Measurement of Physical Activity during School Hours and BMI in Preschool Children

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Introduction: The prevalence of paediatric obesity has increased dramatically in the last decades, in most countries, as well as in Portugal. It is commonly assumed that reduced physical activity (PA) and the increase sedentary behaviour (SB) are implicated in the aetiology of childhood obesity.

Aim: The purpose of this study was two-fold: 1) to describe objective PA patterns during school hours, including SB, total PA (TPA) and moderate-to-vigorous PA (MVPA) and 2) to determine the association of body mass index status (BMI) with school hours PA levels in preschool children.

Materials and Methods: The sample comprised 59 preschool children (31 girls) aged from 2 to 5 years old. Weight and height were measured according to standard protocols. Cole's cut off points were used to define obesity status. The children used the accelerometers (MTI/CSA) for 4 consecutive days during school hours. The data was analysed with the MAHUFFE software and age-specific counts-per-minute (CPM) cut-offs points were used for the different physical activity patterns at the classes of 2, 3, 4 and 5 years old.

Results: We found an overweight/obese frequency of 30%. We only found statistically significant differences between genders at the age of 5 years-old. No statistically significant association was found between BMI and PA patterns.

Conclusion: No statistical significantly differences between gender and BMI were found for these age-groups. Gender differences in MVPA at school appear at early ages.