

Stability and change in physical activity. A longitudinal study in children (6 to 9)

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Introduction

There is a strong agreement that physical activity (PA) positively influences individual health status. Regular PA is an important factor along the whole life cycle to promote a healthy life style. Childhood and adolescence are golden ages to promote and acquire PA habits. Physical activity promotion in childhood and adolescence is partially based on the assumption that PA habits are developed during these periods of life and are maintained throughout adulthood

Objective

(1) to analyse the changes in mean of moderate, vigorous and very vigorous PA levels, and
(2) the inter-individual stability in the same variables during four years.

Method

Sample

The sample comprises 30 children of both genders, aged 6 years in the first evaluation.

Physical activity evaluation

PA was evaluated for 7 consecutive days with the MTI actigraph model 7164, using a 1-min epoch during four years with 2 evaluations per year.

The MTI actigraph data of each day was reduced to minutes spent in MPA, vigorous (6-8.9 METs) PA (VPA), and very vigorous (< 9 METs) PA (VVPA).

The counts were converted to METs using the regression equation developed by (Freedson et al., 1997) for children 6-to-18 years old.



Statistical analysis

We used repeated measures ANOVA to analyse the changes in means and intra-class correlation to analyse the inter-individual stability.

Result

There was a significant decrease in both MPA and VPA in boys:

MPA: $F(5, 60) = 10.455$; $p < 0.001$; VPA: $F(5, 60) = 11.764$; $p < 0,001$

and girls:

MPA: $F(5, 55) = 18,441$, $p < 0.001$; VPA: $F(5, 55) = 8.472$; $p < 0.001$).

There was no significant change in VVPA in both genders.

The intra-class correlation analyses indicate a moderate stability in boys:

MPA: $R = 0.45$, VPA: $R = 0.64$, VVPA: $R = 0.36$

and high in girls:

MPA: $R = 0.84$, VPA: $R = 0.82$, VVPA: $R = 0.62$.

Conclusion

There was a decline of PA in both genders and in all levels of intensity, during the four years of the study. Boys showed a moderate inter-individual stability and girls a high inter-individual stability.

