Proceeding

Supplementary Issue: Spring Conferences of Sports Science. International Seminar of Physical Education, Leisure and Health, 17-19 June 2019. Castelo Branco, Portugal

Proceedings of the International Seminar of Physical Education, Leisure and Health, 17-19 June 2019. Castelo Branco, Portugal

Cite this article as:
Proceedings of the International Seminar of Physical Education, Leisure and Health; Castelo Branco, Portugal. (2019). *Journal of Human Sport and Exercise, 14*(4proc), S1169-S1823. doi:https://doi.org/10.14198/jhse.2019.14.Proc4.82

Table of Contents

Habitual physical activity patterns of pre-school children from Bragança

PEDRO MAGALHÃES[1], EDUARDA COELHO[2,3], PEDRO FORTE[2,4], CATARINA VASQUES[1,5]

[1]*Escola Superior de Educação, Instituto Politécnico de Bragança (IPB), Portugal*
[2]*Centro de Investigação em Desporto, Saúde e Desenvolvimento Humano (CIDESD), Portugal*
[3]*Universidade de Trás-os-Montes e Alto Douro (UTAD), Portugal*
[4]*Instituto Superior de Ciências Educativas do Douro (ISCE Douro), Portugal*
[5]*Centro de Investigação em Educação Básica (CIEB), Portugal*

ABSTRACT

The increase in the prevalence of overweight in children is commonly associated with their low levels of physical activity (PA). In fact, young people who have higher levels of PA over several years tend to have lower rates of overweight than their fewer active peers. Thus, it becomes of the utmost importance to promote the practice of regular PA among children. In this context, the aims of this study were to compare the number of steps done by children during the weekdays with the weekend and to analyse the contribution of a school-base physical exercise (PE) session to the total number of daily steps performed by children. The sample comprised 105 pre-school children, from 3 to 6 years old (4.48±0.69) from 5 kindergartens from Bragança. The PA evaluation was done through daily number of steps from New-Lifestyles NL-2000 pedometer. The mean number of steps taken by the children remained relatively constant during the week, decreasing only slightly on Friday. However, on Saturday and Sunday the decline was more pronounced. Significant differences were found between the number of steps on weekdays and weekend days ($p<0.001$), with higher levels of PA on weekdays. PA was higher ($p<0.001$) on the days with PE session than without PE session in kindergarten. Children of preschool age are more active during the weekdays than at the weekend. The implementation at school-based of PE session at pre-school level had a significant impact on daily PA levels of the children. **Keywords**: Physical activity; Pre-school children; Number of steps; Health promotion.

Corresponding author. *Campus de Santa Apolónia, 5300-253 Bragança, Portugal.*
E-mail: pmaga@ipb.pt
Supplementary Issue: Spring Conferences of Sports Science. International Seminar of Physical Education, Leisure and Health, 17-19 June 2019. Castelo Branco, Portugal.
JOURNAL OF HUMAN SPORT & EXERCISE ISSN 1988-5202

doi:10.14198/jhse.2019.14.Proc4.82

INTRODUCTION

The scientific community is unanimous about the importance of habitual physical activity (PA) as a factor promoting healthy lifestyles (Brown et al., 2004). However, children currently tend to spend most of their free time in sedentary activities (Reilly et al., 2004).

Low levels of PA associated with excess caloric intake are the main causes of obesity in children (Baba et al., 2009). Since childhood and youth are seen as the age groups in which PA habits are acquired and consolidated (Shephard, 1990), it is extremely important to implement intervention programs with PA at these ages. In this context, the main objectives of this study were to compare the number of steps done by children during the weekdays with the weekend days, and to analyse the contribution of a school-base physical exercise (PE) session to the total number of daily steps performed by children. We explored PA differences between days with PE session and days without PE session, and the PA patterns comparing weekdays with weekend days.

MATERIAL AND METHODS

Participants

The sample comprised 105 pre-school children, between 3 and 6 years old (4.46±0.65) from 5 kindergartens from Bragança. From these children, 58 were also evaluated during a school-based PE session.

Measures

About the anthropometry measurements, height was measured with a portable stadiometer SECA (model 213) and weight using TANITA scale (model 885). Height and weight were used to calculate children's body mass index (BMI) (kg/m2). PA evaluation was done through daily number of steps from New-Lifestyles NL-2000 pedometer.

Procedures

Parents were asked for an informed consent before any intervention and the study was authorized by the school authorities. The pedometers were placed on children at the kindergarten. They used it during all day for seven consecutive days, except when doing any activity in the water and during sleeping time.

We implemented in each kindergarten two sessions of PE/week, lasting 50 minutes, with the responsibility of a physical education teacher.

Analysis

A paired t-test was used to compare the changes in children's PA during the weekdays (Monday to Friday) and weekend days (Saturday and Sunday) and between days with and without PE session.

RESULTS

Table 1 shows the mean values, standard deviation and range for age and anthropometric characteristics of the children.

Table 1. Participant characteristics

	Mean ± Standard Deviation	Range
Age (years)	4.48±0.69	3 - 6
Height (m)	1,09±0.06	0.96 - 1.25
Weight (kg)	19.54±3.99	13.70 - 32.50
BMI (kg/m^2)	16.41±2.00	12.72 - 23.34
Percentile	57.38±32.37	1 - 99

Figure 1 demonstrates a stable pattern of PA levels over the first four weekdays, only decreasing on Friday. On Saturday and Sunday, the PA level decreases more sharply. There were no differences between sexes for the number of steps for all evaluated days.

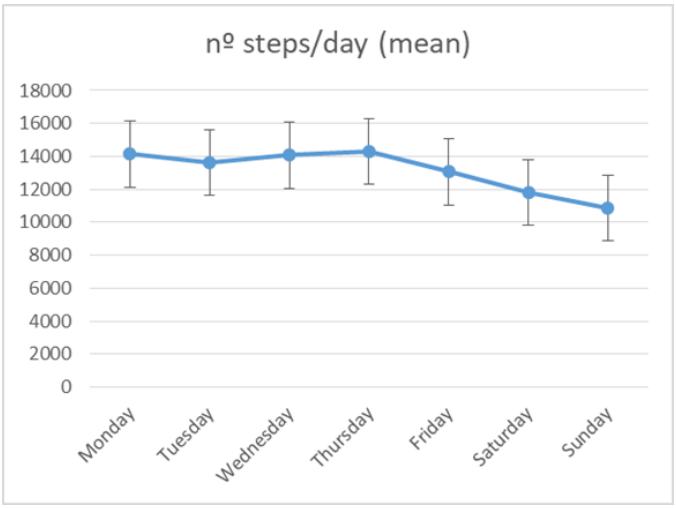

Figure 1. Physical activity pattern (expressed in mean values of steps numbers) by day of the week.

There were significant differences between the number of steps on weekdays and at weekend ($p<0.001$), with higher levels of PA on weekdays. PA was higher ($p<0.001$) on the days with PE session than without.

Table 2. Comparation of physical activity pattern (expressed in nº steps) between weekdays and weekend days, and between days with PE session and days without PE session

	n	M±SD	p
nº steps weekday/day	105	13998.74±3608.73	0.00
nº steps weekend/day	105	11542.90±3990.99	
nº steps with PE session/day	58	15405.14±5836.21	0.00
nº steps without PE session/day	58	12277.12±4455.86	
nº steps /PE session	24	2535.33±751.71	

PE - physical exercise.

DISCUSSION

The mean number of steps taken by children at all days of the week and weekend achieved the threshold of 9000 steps per day recommended for this age group to be considered as sufficiently active (Vale et al., 2015). However, it must be considered that this number of steps represents a minimum and not optimal threshold

of PA levels for this age group. We also observed that the implemented session of PE contributed to a significant increase in the average number of daily steps performed by the children (2535.33±751.71 steps).

CONCLUSIONS

Children of preschool age are more active during the week than at the weekend. The implementation at school-based of PE session at pre-school level had a significant impact on daily PA levels of the children.

REFERENCES

Baba, R., Koketsu, M., Nagashima, M., & Inasaka, H. (2009). Role of exercise in the prevention of obesity and hemodynamic abnormalities in adolescents. Pediatr Int., 51(3), 359-363. https://doi.org/10.1111/j.1442-200x.2008.02729.x

Brown, D. W., Brown, D. R., Heath, G. W., Balluz, L., Giles, W. H., Ford, E. S., et al. (2004). Associations between physical activity dose and health-related quality of life. Med Sci Sports Exerc, 36(5), 890-896. https://doi.org/10.1249/01.mss.0000126778.77049.76

Reilly, J. J., Jackson, D. M., Montgomery, C., Kelly, L. A., Slater, C., Grant, S., et al. (2004). Total energy expenditure and physical activity in young Scottish children: mixed longitudinal study. Lancet, 363(9404), 211-212. https://doi.org/10.1016/s0140-6736(03)15331-7

Shephard, P. J. (1990). Exercice, Fitness and Health: a Consensus of Current Knowledge (Vol. II). Champaind: Human Kinetics.

Vale, S., Trost, S., Duncan, M., Mota, J. (2015). Step based physical activity guidelines for preschool-aged children. Preventive Medicine 70, 78–82. https://doi.org/10.1016/j.ypmed.2014.11.008