CHANGES IN ENJOYMENT OF PHYSICAL ACTIVITY, ACTUAL AND PERCEIVED PHYSICAL ABILITIES IN PRIMARY SCHOOL CHILDREN

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ABSTRACT

Enjoyment of physical activity (PA), actual and perceived physical abilities are important factors in promoting active lifestyles and regular PA among children [1,2], but little research has investigated these relationships over time. The aim of the study was to examine changes in these variables in primary school children involved in an additional physical education lessons program (2 times week^{-1}). Tests involving the standing long jump, 1 kg medicine-ball throw, 10 × 4m shuttle-run, basketball throw and 20m sprint[3,4] were administered before (T_0) and after (T_1) a 4-month intervention in 178 boys and 184 girls aged 8 to 10 years. Enjoyment and levels of PA were assessed using the Physical Activity Enjoyment Scale (PACES)[1] and the Physical Activity Questionnaire for Older Children (PAQ-C)[5], respectively. Individuals' perceptions of strength, speed and agility were measured using the Perceived Physical Ability Scale for Children (PPAS_C)[6]. Significant time effects were found, with participants reporting higher PA ($p<.05$), enjoyment ($p<.01$), and actual and perceived physical ability ($p<.001$) scores at T_1 compared to T_0. Main effects were also obtained for gender, with boys showing better performances ($p<.001$), and higher values in the PPAS_C and PACES ($p<.01$) than girls. Findings support the feasibility and efficacy of the school-based intervention for improving PA levels, enjoyment, and perceived and actual physical abilities of children.

Keywords: enjoyment; perceived physical ability; physical activity; physical education; physical fitness.

INTRODUCTION

Enjoyment of physical activity, actual and perceived physical abilities are important factors in promoting active lifestyles and regular physical activity among children (Barnett et al., 2011; Carraro et al., 2008), but little research has investigated these relationships over time. Previous findings have found that children with high levels of actual and perceived physical competence (i.e. the individual's perception of physical condition, sport and strength competence) may be more likely to engage in physical activity (Bauman et al., 2012; Wrotniak et al., 2006), but most studies have used cross-sectional designs (Baumann et al., 2012). Therefore, this study was designed to examine changes in physical fitness and some psychosocial determinants of physical activity (i.e. perceived physical ability and enjoyment of physical activity) in primary school children involved in an additional physical education lessons program (2 times week^{-1}).

METHODS

Measures

Tests involving the standing long jump, 1 kg medicine-ball throw, 10 × 4m shuttle-run, basketball throw and 20m sprint (Committee of Experts on Sports Research 1993; Morrow et al., 2005) were administered before (T_0) and after (T_1) a 4-month intervention in 178 boys and 184 girls aged 8 to 10 years. Enjoyment and levels of physical activity were assessed using the Physical Activity Enjoyment Scale (PACES; Carraro et al., 2008) and the Physical Activity Questionnaire for Older Children (PAQ-C; Crocker et al., 1997), respectively. Individuals' perceptions of strength, speed and agility were measured using the Perceived Physical Ability Scale for Children (PPAS-C; Colella et al., 2008).

Statistical Analyses

A 2 (gender) × 2 (time: T_0 vs T_1) analysis of variance with repeated measures was performed to examine the evolution of the the measured parameters in boys and girls over the two test periods. Statistical significance was set at $p \leq 0.05$. All analyses were performed using SPSS version 17.0 (SPSS Inc., Chicago, IL, USA).

RESULTS

Descriptive statistics for each variable by gender and time of assessments are reported in Table 1. Significant time effects emerged, with participants reporting higher physical activity ($p < 0.05$), enjoyment (positive scale: $p < 0.01$; negative scale: $p < 0.001$), and actual and perceived physical ability ($p < 0.001$) scores at T_1 compared to T_0. Main effects were also obtained for gender, with boys showing better performances ($p < 0.001$), and higher values in the PPAS-C ($p = 0.003$) and PACES (negative scale: $p = 0.004$) than girls. No gender × time interaction effects were found, indicating that changes over time were similar for boys and girls.

DISCUSSION AND CONCLUSION

Findings of this preliminary study showed that physical activity levels, performances on throwing and weight-bearing tasks, perceived physical ability and enjoyment of physical activity significantly improved 4-months after the additional physical education lessons program in boys and girls. In addition to poorer levels of physical performances, girls reported lower perceived physical ability and enjoyment of physical activity than boys. Our findings confirm previous research showing that improved actual physical competence is associated with higher perceived competence (Morano et al., 2011), and increased physical activity levels (Wrotniak et al., 2006) and fitness (Vedul-Kjelsås et al., 2012). Despite the lack of a control group, findings support the feasibility and efficacy of the school-based intervention for improving physical activity levels, enjoyment, and perceived and actual physical abilities of children.

Long-term follow-up studies are needed to examine the relationships among physical, psychological and behavioral factors in school settings.

Table 1 Descriptive statistics by gender and time of assessments

	Boys (n = 178)		Girls (n = 184)	
Variable	**Pre (T_0)**	**Post (T_1)**	**Pre (T_0)**	**Post (T_1)**
Height (cm)	140.1 ± 0.8	141.9 ± 10.2	139.6 ± 0.1	142.5 ± 0.4
Weight (kg)	40.7 ± 11.8	42.6 ± 13.1	39.6 ± 11.0	40.5 ± 6.9
BMI (kg/m^2)	20.5 ± 4.6	22.0 ± 2.7	20.3 ± 4.3	20.8±2.3
Physical activity levels	2.8 ± 0.6	2.9 ± 0.7	2.7 ± 0.7	2.8 ± 0.7
Perceived physical ability	19.1 ± 3.2	19.5 ± 3.2	18.4 ± 2.6	18.9 ± 2.7
Enjoyment of physical activity				
Positive scale	39.0 ± 5.1	39.2 ± 5.1	38.8 ± 4.5	39.6 ± 4.5
Negative scale	10.5 ± 4.1	9.8 ± 3.4	10.1 ± 3.2	9.4 ± 3.4
Physical performance				
Standing long jump (cm)	120.8 ± 24.0	128.0 ± 23.9	106.7 ± 21.3	114.8 ± 20.6
Medicine ball throw (m)	4.3 ± 1.2	4.5 ± 1.3	3.7 ± 1.0	3.8 ± 1.1
20 m sprint (s)	4.6 ± 0.7	4.5 ± 0.8	5.0 ± 0.7	4.9 ± 0.8
10 × 4 m shuttle run (s)	13.1 ± 1.3	12.5 ± 1.4	13.9 ± 1.6	13.4 ± 1.8
Basketball throw (m)	3.8 ± 0.9	4.0 ± 1.0	3.3 ± 0.9	3.4 ± 0.8

Data are reported as mean ± SD.

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