

CLIMBING STAIRS IN ADOLESCENCE: DOES EVERY STAIR COUNT?

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INTRODUCTION

Adolescence is the period of life with the greatest decline in levels of physical activity (PA) (Nader, Bradley, Houts, McRitchie, & O'Brien, 2008; Ortega et al., 2013). Climbing stairs involves energy expenditure at moderate or vigorous intensities (Ridley, Ainsworth, & Olds, 2008). The aims of this study were (i) to describe the amount of flights of stairs climbed by adolescents, and (ii) its relationship with levels of objectively-measured PA.

METHOD

A total of 901 adolescents (49% women, aged 11 to 18 years, who participated in the UP&DOWN study (<https://sites.google.com/site/upandownstudy/home>) were included in the analyses. Participants reported the number of flights of stairs climbed per day among the following options: (i) 2 flights of lower, (ii) 3-4 flights, (iii) 5-9 flights, (iv) 10-14 flights, and (v) 15 or more flights. Participants also worn an ActiGraph accelerometer for 7 consecutive days and the time spent in moderate PA, vigorous PA and moderate-to-vigorous PA was estimated. Descriptive characteristics in the total sample were presented as percentages and the association between flights of stairs climbed and intensities of objectively-measured PA were examined by partial correlations adjusted for age (years), gender (male, female) and mother's educational attainment (no education, elementary, middle, high, and university).

RESULTS

The proportion of adolescents who climbed ≤ 2 , 3-4, 5-9, 10-14 and ≥ 15 flights of stairs was 39%, 29%, 19%, 6% and 6%, respectively. The amount of time spent in moderate PA ($r=0.03$), vigorous PA ($r=0.04$), and moderate-to-vigorous PA ($r=0.04$) measured by accelerometer was not significantly associated ($p>0.05$) with the number of flights of stairs climbed, after controlling for age, gender and mother's educational attainment.

DISCUSSION

Stair climbing is a safe, easy and inexpensive activity built into our daily lives. The Harvard Alumni Study found that middle-aged men who average at least 20 or 35 flights per week had a 11% and 18% lower mortality than men who climbed less than 10 flights per week, respectively (Lee & Paffenbarger, 2000). Some studies also have found that climbing stairs might be a key behavior for targeted intervention to increase PA levels in adults (Lewis & Eves, 2011; Ryan, Lyon, Webb, Eves, & Ryan, 2011; Webb & Smith, 2011). PA produced by climbing stairs might contribute to levels of moderate to vigorous PA and build health in adolescence. However, our results indicate that climbing stairs do not seem to significantly contribute in increasing levels of PA at recommended intensities during this life period.

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