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Changes in physical activity and weight status of Chinese children: A retrospective longitudinal study

(中国における児童の肥満度および身体活動量に関する研究: 後ろ向き縦断研究)

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Abstract

The aims of this study were to describe longitudinal changes in objectively measured physical activity (PA) in Chinese children and to investigate associations of such changes with weight status, gender, and day of the week (weekday vs. weekend). This longitudinal study was conducted on 94 children (51 boys and 43 girls). Children underwent measurements in 2011 (age 7-8 years, 2nd grade) and in 2014 (age 10-11 years, 5th grade). The children were divided into: normal weight (NW) or overweight/obese (OW/OB) groups based on weight status recorded in 2014. PA was quantified by daily steps measured using a uniaxial accelerometer, then total PA time and time spent performing moderate to vigorous PA (≥ 3 METs) were analyzed separately for weekdays and weekends. Regardless of gender, PA outcomes (daily steps, total PA time, and moderate to vigorous PA) declined with age in the OW/OB group ($P < 0.05$), but no change was observed in the NW group, especially on weekends. In particular, the percentages of achieving the global recommendations on PA for health established by the World Health Organization was significantly lower in the OW/OB group than in the NW group, in which the percentages of achieving the PA recommendations increased with age in both boys and girls. Our findings suggest that longitudinal changes in PA, predominantly in the quantity and intensity of activity, are related to weight status in children. Prevention of this decline in PA among children, particularly emphasis on weekends and in OW/OB children, may be a suitable health promotion target.