

**Abstract #: 504****Patterns of physical activity and sedentary time:  
Changes and tracking from early childhood**

Katherine Downing<sup>1</sup>, Trina Hinkley<sup>1</sup>, Anna Timperio<sup>1</sup>, Jo Salmon<sup>1</sup>, Alison Carver<sup>2,3</sup>, Dylan Cliff<sup>4</sup>, Anthony Okely<sup>4</sup>, Kylie Hesketh<sup>1</sup>

<sup>1</sup>Institute for Physical Activity and Nutrition (IPAN), Deakin University, Geelong, Australia, <sup>2</sup>School of Exercise and Nutrition Sciences, Deakin University, Geelong, Australia, <sup>3</sup>Mary MacKillop Institute for Health Research, Australian Catholic University, Melbourne, Australia, <sup>4</sup>Early Start, Faculty of Social Sciences, Illawarra Health and Medical Research Institute, University of Wollongong, Wollongong, Australia

**Background:** Little is known about how activity patterns change throughout childhood. This study examined changes and tracking of total volume and bouts of physical activity (PA) and sedentary time (SED) from early to late childhood.

**Methods:** Volume and bouts of SED and light-, moderate- and vigorous-intensity PA (LPA, MPA and VPA) were assessed by accelerometry at 3-5y (n=758), 6-8y (n=473) and 9-11y (n=478). Mixed models examined changes and generalized estimating equations assessed tracking ( $\beta < 0.3$ =weak,  $0.3-0.6$ =moderate,  $>0.6$ =strong), stratified by sex and controlling for baseline age and time between measurements.

**Results:** Patterns of SED increased and LPA decreased for both sexes. Total volume of MPA decreased for girls, but time in  $\geq 1$ -min bouts increased for both sexes. Total volume of VPA increased for both sexes, with time spent in  $\geq 1$ -min bouts increasing for boys. All volume and bout variables tracked moderately for boys, except SED bouts  $\geq 15$ -min, LPA bouts  $\geq 5$ -min and MPA bouts  $\geq 1$ -min which tracked weakly. For girls, total SED and bouts  $\geq 1$ -min tracked strongly, while total volume of LPA, MPA and VPA,  $\geq 5$ - and  $\geq 10$ -min SED bouts, and  $\geq 1$ -min LPA and MPA bouts tracked moderately.

**Conclusions:** Activity patterns changed from early to late childhood, with total volumes and short bouts of PA and SED tracking more strongly than longer bouts. Although MVPA increased slightly, total volume and bouts of SED increased considerably more and, of concern, replaced LPA.

**Key messages:** Interventions are needed to ensure that young children establish and maintain healthy PA and SED levels from a young age.