VPA ($U=576$, $=-4{\cdot}13$, $P=0{\cdot}000$, mean rank 35·20 *v.* 58·84, SA *v.* White, respecively). Weekend activity showed no ethnic difference in MPA or LPA ($U=961$, $=-0{\cdot}48$, $P=0{\cdot}319$, $U=908$, $=-0{\cdot}896$, $P=0{\cdot}187$, respectively). However, SA children spent less time in VPA at weekends than White EU ($U=767$, $=-2{\cdot}05$, $P=0{\cdot}020$, mean = 39·68 *v.* 50·96, SA *v.* White EU, respectively).

Conclusions: Our results suggest children from ethnic minorities exercise differently. Further work is needed to explore the reasons for these differences and how these may impact on metabolic health.

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38 – Ground reaction forces in overweight children

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Aim: To investigate the relationship between expected and recorded vertical (V), anterior-posterior (AP) and medial-lateral (ML) ground reaction forces (GRF) in overweight children.

Participants: Subjects were recruited from the paediatric weight management clinic at the Adelaide and Meath Hospital, Dublin. Subjects aged 7–17 years and with a BMI >25 kg/m^2 were included in the study. Subjects who presented with a leg length discrepancy >2 inches were excluded from the study.

Method: Subjects attended the gait laboratory at the Trinity Centre for Health Sciences. Anthropometry was conducted on arrival. Subjects fitted with surface markers walked between two Coda cameras (Charnwood Dynamics LtD, Rothley, UK) on a 10 m platform embedded with two AMTI force plates (Advanced Mechanical Technology, Inc., Watertown, MA, USA). Observed maximum GRF were collected manually from graphs. Expected maximum GRF were calculated using percentage body weight values reported by Cottalorda *et al.* (2003).

Analysis: Paired *t* tests were used to compare means between observed and expected V, AP and ML GRF. A *P*-value <0·05 was considered statistically significant.

Results: Eight males and fifteen females completed the study (age 12·04 (SD 2·8) years; weight 79·11 (SD 27·85) kg; height 157·87 (SD 14·05) cm; BMI 29·51 (SD 4·55) kg/m^2). Observed AP and ML GRF were found to be significantly greater than expected GRF, $P=0{\cdot}016$ and $P=0{\cdot}000$, respectively. No significant difference between observed and expected V GRF were noted $P=0{\cdot}615$.

Conclusions: From the present study, overweight children incur greater than anticipated AP and ML GRF than anticipated for their body weight. These forces may predispose this group to musculoskeletal disorders. This information should be noted when prescribing exercise to overweight children.

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Reference: Jerome Cottalorda, Abderrehmane Rahmani, Mountaga Diop, Vincent Gautheron, Eric Ebermeyer and Alain Belli (2003). Influence of school bag carrying on gait kinetics. *Journal of Pediatric Orthopaedics B*, **12** (6): 357–364.

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39 – Barriers to participation in physical education among obese pupils

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Introduction: Physical education's (PE) profile has recently been raised in the fight against childhood obesity. The present study determined overweight/obesity prevalence among pupils recruited from five secondary schools in the South of England and investigated their barriers to PE participation.

Methods: Body fat% of 380 pupils (202 boys and 178 girls) aged 11–15 years, were measured using bioelectric