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## Day 2. Posters – Physical Activity for Health

### D2.P3. Carrying shopping bags poses no additional fall risk to healthy older females as assessed by gait

THEODOROS M. BAMPOURAS\* & SUSAN DEWHURST

University of Cumbria

\*Corresponding author:

[theodoros.bampouras@cumbria.ac.uk](mailto:theodoros.bampouras@cumbria.ac.uk)

Food shopping is an important aspect of maintaining independence and social interaction in older age (AgeUK, 2012, *Food Shopping in Later Life*). Carrying the shopping bags home, however, may pose higher fall risk. Carriage of UK-style shopping bag could cause exaggerated forward momentum during walking, increasing instability and, consequently, fall risk. The aim of the project was to examine the effect of carrying shopping bags on gait in healthy older females aged over 65 years. Following institutional ethics approval, nine older females (aged 71 ( $s$  5.9) years) walked on a treadmill for 1 min at a self-selected speed carrying bags of varying loads and distributions (no bags, one 1.5-kg bag in each hand, one 3-kg bag in each hand, one 1.5-kg bag in preferred hand only, one 3-kg bag in preferred hand only; loads representing typical weight of essential shopping items) in a randomised order. Stride length, cadence, contact phase and left/right imbalance characteristics were assessed using the Optojump Optical Measurement System (Microgate, Italy). Average and coefficient of variation values were recorded for each variable, to assess fall risk (Callisaya et al., 2010, *Age and Ageing*, 39, 191–197). Additionally, the load carried was quantified relative to handgrip strength (Takei Scientific Inst. Co. Ltd, Japan). A repeated measures analysis was used, and significance was set at  $P < 0.05$ . The heaviest load (3 kg in each hand, 6 kg in total) was 9.1% (range 7%–11%) of body mass and 14.3% (range 9.8%–22.8%) of handgrip strength. Average walking speed was  $2.93 \pm 0.54 \text{ km} \cdot \text{h}^{-1}$ . Gait variables did not change with carrying shopping bags between any of the conditions for either average or coefficient of variation values. Gait parameters and their variability have been previously reported as important indicators of fall risks in older individuals,

with changes in gait, suggesting poorer balance (Callisaya et al., 2010, *Age and Ageing*, 39, 191–197). In the present study, gait variables were not affected by carrying shopping bags, either in both hands or in one hand only, indicating that shopping does not increase fall risk in older females. The current findings support shopping for essentials as a safe activity for older females. These results could be used to reduce fear of falling and subsequently encourage essential items shopping, reducing social isolation as well as maintaining independence and increasing physical activity in older individuals (Hornyak et al., 2013, *Archives of Physical Medicine and Rehabilitation*, 94, 2529–2534).

### D2.P4. Examining relative age effects in fundamental skill proficiency in British children aged 6–11 years

SAMANTHA BIRCH\*, MICHAEL DUNCAN & SAM OXFORD

Coventry University

\*Corresponding author: [s.birch@coventry.ac.uk](mailto:s.birch@coventry.ac.uk)

The relative age effect (RAE) suggests that there is a clustering of birth dates just after the cut-off used for sports selection in age-grouped sports and that in such circumstances relatively older sportspeople may enjoy maturational and physical advantages over their younger peers (Cobley et al., 2009, *Sports Medicine*, 39, 235–256). Few studies have examined this issue in non-selective groups of children, and none have examined whether there is evidence of any RAE in skill performance. The importance of fundamental movement skills (FMS) for physical activity and sports participation has been documented (Okely et al., 2001, *Medicine and Science in Sport and Exercise*, 33, 1899–1904). The aim of this study was to assess whether there were differences in FMS proficiency within children placed in age groups according to the school year. Six FMS (sprint, side gallop, balance, jump, catch and throw) were assessed in 539 school children (258 boys and 281 girls) aged 6–11 years (mean age  $\pm s = 7.7 \pm 1.7$  years). Differences were analysed in these FMS between gender groups and children born in different quarters (Q) of the year after controlling for age and body mass