



## 2021 SMA e-Conference Podium Presentations

### S0(4)

#### Flat flexible compared to stable supportive footwear for self-managing knee osteoarthritis symptoms: a randomised clinical trial

K. Bennell<sup>a</sup>, P. Campbell<sup>a</sup>, R. Hinman<sup>a</sup>, J. Kasza<sup>b</sup>, B. Metcalfe<sup>a</sup>, K. Paterson<sup>a</sup>, T. Wrigley<sup>a</sup>

<sup>a</sup>Centre for Health, Exercise and Sports Medicine, Department of Physiotherapy, School of Health Sciences, The University of Melbourne, Australia

<sup>b</sup>School of Public Health and Preventive Medicine, Monash University, Australia

**Introduction:** International clinical guidelines advise stable supportive shoes for knee osteoarthritis (OA) however evidence suggests flat flexible shoes may reduce knee joint loading and symptoms. We hypothesised that flat flexible shoes would lead to greater improvements in pain and function, compared to stable supportive shoes.

**Methods:** This was a two-arm, participant- and assessor-blinded comparative effectiveness randomised controlled trial. We recruited 164 people aged 50 years or older with knee pain on most days of the past month and moderate to severe radiographic medial tibiofemoral OA. Participants were randomised to receive either flat flexible shoes (n=82) or stable supportive shoes (n=82), classified based on: i) differences in shoe heel height/thickness, ii) shoe pitch, iii) arch support/motion control features, iv) sole flexibility and v) weight. Shoes were worn >6 hours/day for 6 months. Primary outcomes were changes in walking knee pain (11-point numerical rating scale) and physical function (Western Ontario and McMaster Universities Osteoarthritis Index subscale, 0–68) at 6-months. Secondary outcomes included additional measures of pain, function, physical activity, quality of life and adverse events.

**Results:** 164 participants were recruited and 161 (98%) completed 6-month primary outcomes. There was evidence of a between-group difference in change in walking knee pain favoring stable supportive shoes (mean difference=1.1 units (95%CI 0.5 to 1.8; p=0.001) but no strong evidence of difference in function (2.3 (-0.9 to 5.5; p=0.17)). Furthermore, 46 (58%) participants in the stable supportive group achieved the minimal clinically important difference (MCID) in pain, compared to 32 (40%) in the flat flexible group (relative risk 1.56, 1.05 to 2.02). Improvements in knee-related quality of life and ipsilateral hip pain also favored stable supportive shoes (-5.3 (-10.0 to -0.5; p=0.03) and 0.7 (0.0 to 1.4; p=0.04), respectively), with no evidence of between-group differences in other secondary outcomes. Fewer participants reported adverse events with stable supportive shoes (n=12 (15%)) compared to flat flexible shoes (n=26 (32%); relative risk=0.46 (0.25 to 0.84; p=0.012)).

**Discussion:** Flat flexible shoes were not superior to stable supportive shoes. Contrary to our hypothesis, stable supportive shoes improved knee pain on walking more than flat flexible shoes. Furthermore, a greater proportion of participants allocated to stable supportive shoes achieved the MCID in walking pain compared to those allocated to flat flexible shoes. Findings from this trial are the first to show that stable supportive shoes may be an inexpensive, low burden self-management strategy to improve pain associated with knee OA.

**Conflict of interest statement:** My co-authors and I acknowledge that we have no conflict of interest of relevance to the submission of this abstract

<http://dx.doi.org/10.1016/j.jams.2021.09.011>

### S0 (5)

#### Should we rely on the limb symmetry index to evaluate functional performance after anterior cruciate ligament injury and reconstruction?

C. Barton<sup>a</sup>, K. Crossley<sup>a</sup>, A. Culvenor<sup>a</sup>, J. Heerey<sup>a</sup>, M. King<sup>a</sup>, A. Kumar<sup>a</sup>, B. Patterson<sup>a</sup>, L. Perraton<sup>b</sup>

<sup>a</sup>La Trobe Sport and Exercise Medicine Research Centre, School of Allied Health, La Trobe University

<sup>b</sup>Department of Physiotherapy, School of Primary Health Care, Monash University

**Introduction:** A limb symmetry index (LSI) >90% on hop tests is a widely advocated benchmark for functional recovery and return-to-sport clearance after ACL injury. Yet, the LSI assumes the contralateral limb is the “gold standard” and immune to decline. Due to the bilateral functional deficits evident after ACL injury and ACLR, other assessment methods such as comparing performance of both limbs to age, sex and activity-level matched uninjured peers may be required. Our primary aim was to describe the functional performance changes in the ACL-injured and contralateral limbs 1- to 5-years post-ACL reconstruction (ACLR) to determine the influence on LSI. Our secondary aim was to compare the ACLR group results to uninjured healthy controls.

**Methods:** 59 participants (38 men) aged 29±16 years completed three hop-tests and a one-leg rise 1- and 5-years post-ACLR. Mean(±SD) scores for the ACLR and contralateral limbs, and LSI at 1- and 5-years were reported. Linear mixed-effects models evaluated the difference in change between the ACLR and contralateral limbs. Participants were classified with stable, improving or worsening function relative to previously published minimal detectable change thresholds. Healthy controls completed the hop-tests (n=41) and one-leg rise (n=31) at a single time-point to provide reference data. Linear regression models (adjusted