Critically appraised paper: Stable supportive shoes improved knee pain more than flat flexible shoes in people with moderate to severe radiographic medial knee osteoarthritis

Synopsis


Question: Are flat flexible shoes superior to stable supportive shoes in improving walking knee pain and physical dysfunction in people with moderate to severe radiographic medial knee osteoarthritis? Design: Superiority randomised controlled trial with concealed allocation and blinded outcome assessment. Setting: Community participants from Melbourne, Australia. Participants: Adults aged ≥ 50 years with knee pain on most days of the past month; knee pain during walking in the past week of ≥ 4 on an 11-point numerical rating scale; and moderate to severe radiographic tibiofemoral osteoarthritis (Kellgren-Lawrence grade 3 to 4). Main exclusion criteria were: lateral ≥ medial joint space narrowing, recent (past 6 months) or planned (next 6 months) knee surgery, and/or currently using shoe orthoses or customised shoes. Randomisation of 164 participants allocated 82 to flat flexible footwear and 82 to stable supportive footwear. Interventions: Flat flexible shoes had heel height < 15 mm, shoe pitch < 10 mm, no arch support, minimal sole rigidity and weighed < 200 grams. Stable supportive shoes had heel height > 30 mm, shoe pitch > 10 mm, arch support, rigid sole and weighed > 300 grams. Participants chose two different pairs within their allocated group and were advised to increase shoe wear by 1 hour/day until wearing the shoes as much as possible (≥ 6 hours/day) for 6 months. Outcome measures: Primary outcomes were 6-month change in: average walking pain over the previous week via an 11-point numerical rating scale (0 = no pain, 10 = worst pain possible); and physical function via the Western Ontario and McMaster Universities Osteoarthritis Index function subscale (0 = no dysfunction, 68 = maximum dysfunction). Secondary outcome measures were Knee Injury and Osteoarthritis Outcome Score subscales, pain in back/hips/knees/feet/ankles, health-related quality of life, physical activity and global changes in pain and physical function. Results: In total, 161 (98%) participants completed the study. There was no evidence found at 6 months that flat flexible shoes were superior to stable supportive shoes regarding any primary or secondary outcome. There was evidence showing a between-group difference in change in pain favouring stable supportive shoes (1.1 units, 95% CI 0.5 to 1.8), but not function (2.3 units, 95% CI −0.9 to 5.5). Fewer participants reported adverse events with stable supportive shoes (n = 12, 15%) compared with flat flexible shoes (n = 26, 32%) (risk difference −0.17, 95% CI −0.30 to −0.05). Conclusion: Flat flexible shoes were not superior to stable supportive shoes. Stable supportive footwear resulted in greater reductions in walking knee pain over 6 months and may be a useful self-management strategy in this subgroup of patients with knee osteoarthritis.


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References