**Supplementary digital content 1:** Flow chart of the experimental design

**Week 1:** VAS, ODI and Euro-qol, godin-leisure time questionnaire, 3D testing, MTP, Biering-Sorensen test.
Addressing of beliefs, coaching of lumbo pelvic control and individualised postural adjustments (i.e. moving from sway back to neutral, from active extension to neutral and relaxed while sitting and standing).
Start of 4 week familiarisation phase: Session 1 of single leg gluteus raise, goblet squats, split squats, planks and standing row exercises. Load approx 10RM, 3 sets of 8, 3 sessions per week.

**Week 2:** Delivery of session 2 of exercises: Standardised warm up (gluteus self myofascial release, glute raise, multi direction lunge, standing hamstring stretch to overhead squat, assisted squat), deadlifts, step ups, lat pulldown, side bridge, press up.
Sessions alternated between 2 x session 1 and 1 x session 2 in one week and 1x session 1 and 2 x session 2 in the following week.

**Week 4:** VAS, ODI and Euro-qol, MTP, 3D testing and Biering-Sorensen. Start of strength phase. One coached session to demonstrate loading changes to approx 6-7RM 3 sets of 5, 3 sessions per week.

**Week 16:** VAS, ODI and Euro-qol questionnaires, repeat MRI, MTP, 3D testing, Biering Sorensen.

VAS, ODI and Euro-qol questionnaires taken every 4 weeks, supervised session once every 2 weeks.