ORAL PRESENTATION
OP25

A Comparative Study on the Effectiveness of Otago Exercises and Perturbation Training for Improving Balance and Mobility in Older Adults with Bilateral Knee Osteoarthritis

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ABSTRACT

Background and Objectives: Bilateral knee osteoarthritis drives postural instability in older adults. The home-based Otago Exercise Programme (OEP) improves volitional strength but neglects reactive neuromuscular deficits causing falls during unexpected disturbances. This 12-week supervised Perturbation Training (PT) study was compared against home-based OEP on balance and functional mobility in older adults with bilateral knee OA. **Methods:** A quasi-experimental comparative design was conducted at Klinik Kesihatan Kupang, Kedah. Forty-six participants (65–75 years) were allocated to the PT group (n = 23) or the OEP group (n = 23). Primary outcomes—the Berg Balance Scale and the Timed Up and Go test were evaluated at baseline and 12 weeks using a 2×2 mixed-design ANOVA and Cohen's d effect size calculations. **Results:** Both groups improved significantly ($p < 0.05$); however, the PT exhibited a steeper trajectory via a Time × Group interaction ($p < 0.05$). The PT group achieved a BBS improvement of 8.05 points and a TUG reduction of 4.12 seconds, nearly doubling the OEP group's gains (+4.74 BBS; −1.72 s TUG). Both groups produced similarly large balance effects ($d = 3.32$ vs $d = 3.12$) but mobility gains were substantially greater for PT ($d = 2.31$ vs $d = 1.08$). **Conclusion:** A 12-week supervised PT programme is significantly more effective than the home-based OEP for enhancing reactive balance and functional mobility in patients with bilateral knee OA in primary care.

Keywords: Bilateral Knee Osteoarthritis; Perturbation Training; Otago Exercise Programme; Postural Balance; Functional Mobility; Elderly Rehabilitation

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