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The Effects of Additional Gluteal Control Training in Chronic Low Back Pain Patients with Functional Leg Length Inequality

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Study Protocol

- Objectives: To investigate the effect of additional gluteal control training on improving FLLI, the symmetry of pelvic alignment, hip control ability, pain, and disability in the LBP patients with FLLI.
- Design: Double-blind randomized- control trail study design
- Methods: 48 LBP patients with FLLI were recruited randomized to the additional gluteal control training group (GT) (experimental group, 10 males and 14 females, 47.58±9.42 years, n=24) or the regular training group (RT) (control group, 11 males and 13 females, 47.38±11.31 years, n=24). Both groups received general physical therapy (including thermal therapy, electo-therapy, and lumbar traction) for 6 weeks, and GT group received additional gluteal control training. The primary outcomes were pelvic inclination (PI) (degree), ilium anterior tilt difference (IATD) (degree), and functional leg length inequality (FLLI) (centimeter). And the secondary outcome measures were visual analogue scale (VAS), patient specific-functional scale (PSFS), Oswestry disability index (ODI), hip control ability, global rating of change scale (GRoC), lower extremity strength (kilogram) and lower extremity flexibility (degree). Statistical analysis was performed on an intention to treat basis using two-way repeated measures analysis of variances (ANOVAs) to examine if the experimental group showed more improvement than the control group. The significance level was set at $p<0.05$.

Statistical Analysis Plan

- Two-way repeated measures analysis of variance (ANOVA) for pelvic inclination, ilium anterior tilt difference, functional leg length inequality, VAS, ODI, PSFS, muscle strength and muscle flexibility
- Statistical significance for all comparison at $P < .05$