Abstract

Background: Non-specific low back pain (NSLBP) is a major health issue globally, impacting millions of adults. The aim of the study was to determine where the addition of Chair and Swiss ball Pilates to core, along with multifidus muscles, results in a consistent increase in core stability and neuromuscular coordination, through targeted exercises, can significantly reduce non-specific low back pain (NSLBP).

Objective: The goal was to assess the impact of Chair Pilates and Swiss ball Pilates on decreasing pain intensity, enhancing functional ability, and strengthening core muscles in adults experiencing non-specific low back pain.

Methods: Following the Institutional Ethical Committee approval and informed consent from all the volunteers, a quasi-experimental research study was carried out involving 30 participants aged between 18 and 30 who had been diagnosed with non-specific low back pain (NSLBP). The participants were randomly assigned to two groups: Group 1 (the experimental group, n=15) underwent Chair and Swiss ball Pilates interventions, while Group 2 (the control group, n=15) performed basic pelvic floor exercises. The intervention period spanned 8 weeks, with evaluations taking place before and after the intervention using the Visual Analog Scale (VAS), Oswestry Disability Index (ODI), and Pressure Biofeedback Unit (PBU) as the outcome measures.

Results: Both Chair and Swiss Ball Pilates and Pelvic Floor exercises significantly improved pain, function, and core strength in non-specific low back pain ($p < 0.05$). However, the Pilates group showed greater improvements across all outcomes. Statistical comparisons confirmed Pilates as more effective than Pelvic Floor exercises, making it a superior conservative treatment option for managing non-specific low back pain.

Conclusion: This study found that Chair and Swiss Ball Pilates were more effective than pelvic floor exercises in relieving non-specific low back pain. Pilates improved pain, core strength, and function by promoting better posture, flexibility, and deep muscle coordination. These results highlight Pilates as a practical, whole-body approach and a strong option for personalized, conservative treatment of low back pain.

Keywords: Non-specific low back pain, Pilates, Chair Pilates, Swiss ball, Core strength, Functional disability

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