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Effects of Structured Fitball Exercise Program on Modification of Pain, Movement and Psychosocial Well-Being in Patients with Post-Natal Low Back Pain: A Pilot Study

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Introduction

Low back pain (LBP) is a common and complex musculoskeletal disorder. Evaluation and management of LBP using the biopsychosocial approach has been advocated for over a decade. Approximately 50% of women experienced LBP during pregnancies and post-natally. Evidence suggesting the interaction between the physical impairment and the psychosocial well-being status in females with post-natal back pain becomes available.

Objectives

This pilot study aimed to evaluate the modification of pain intensity, movement features and psychosocial well-being in post-natal LBP patients after structured fitball exercise program.

Methodology

3 females (age between 30 and 32) with post-natal LBP as pilot cases were recruited to participate for a 6-week structured fitball exercise program (12 sessions in total). The 90-minute session included relaxation, flexibility and abdominal core training with fitball under the physiotherapist's instruction. They were stratified as low and high risk groups by STarT Back Screening Tool. Pain intensity, lumbar movement during bending task and specific outcomes related to functional capacity and fear of movement were recorded before and after the program.

Result

Numeric Global Rating Changes Scale (NGRCS) improved for approximately 70% post-exercise program. Significant improvement was also shown in disability level measured by Roland Morris Disability Questionnaire (RMDQ) (dropped from 8 to 4) and Patient Specific Functional Scale (PSFS) (improved from 3 to 9);

flexion/extension time (FET) from 1.89/1.75 to 1.02/1.01 (s); movement features of lumbar spine movement acquired by 3D motion tracking system in which the peak lumbar velocity in flexion and extension improved from 67.95 to 95.38 and from 86.88 to 108.16 ($^{\circ}$ /s) respectively. The score of Tampa Scale for Kinesiophobia (TSK) decreased from 44 to 41 and Pain Self-Efficacy Questionnaire (PSEQ) improved from 39 to 48.

Analysis of the pilot data showed the positive responses towards structured fitball exercise program as displayed in respective outcome measures for pain intensity, movement features, status of psychosocial well-being particularly in the context of fear avoidance behaviour in the sample group of females with post-natal LBP.