

CODE: ABS 017

EFFICACY OF AEROBIC AND BALANCE EXERCISE TO IMPROVE FUNCTIONAL INDEPENDENCE, RISK OF FALLS AND QUALITY OF LIFE IN GERIATRIC POPULATION - QUASI EXPERIMENTAL STUDY.

Rajiv Ramayah¹, Kshtrashal Singh², Rishikesavan R³.

¹Research Scholar, Master of Physiotherapy (Musculoskeletal), School of Physiotherapy-FAHP, AIMST University, Malaysia.

²Deputy Dean-Faculty of Allied Health Professions (SOP, SOMA, SOS&H), AIMST University, Malaysia.

³Professor-Faculty of Allied Health Professions (SOP, SOMA, SOS&H), AIMST University, Malaysia.

Background: Population aging has led to a growing prevalence of functional limitations and reduced quality of life among older adults, making the promotion of functional independence a major public health priority. Age-related declines in aerobic capacity and balance significantly impair activities of daily living and increase the risk of falls and dependency.

Purpose: To determine the effectiveness of a structured neuromuscular training exercise program on functional outcomes and pain intensity in individuals with knee osteoarthritis. A secondary objective is to compare changes in functional mobility between participants receiving neuromuscular training and those receiving conventional physiotherapy exercises.

Methods and Materials: A single-blinded, parallel-group randomized controlled trial will be conducted to evaluate the effectiveness of neuromuscular training in individuals with knee osteoarthritis. Eligible participants will be randomly allocated to either a neuromuscular training group or a conventional physiotherapy group using a concealed allocation method. The study will run for six weeks, with supervised exercise sessions conducted according to standardized protocols. Outcome measures will include the WOMAC questionnaire to assess pain, stiffness, and physical function, the Visual Analogue Scale (VAS) for pain intensity, and the Timed Up and Go (TUG) test to evaluate functional mobility. Assessments will be performed at baseline and immediately after the intervention period.

Results: It is expected that the neuromuscular training group will show greater improvement in pain reduction, functional outcomes, and mobility compared to the conventional physiotherapy group after six weeks of intervention.

Conclusion: Neuromuscular training may be an effective treatment approach for reducing pain and enhancing physical function in individuals with knee osteoarthritis. By targeting both strength and neuromuscular control, it may offer additional functional benefits compared to conventional strengthening exercises alone. As a result, patients may experience improved mobility, greater confidence during daily activities, and an overall better quality of life.

Keywords: Aerobic exercise, Balance training, Quality of life, Risk of falls, Geriatric population.