CODE: ABS 001

EFFICIENCY OF AQUATIC TREADMILL TRAINING OVER BODY WEIGHT SUPPORTED TREADMILL TRAINING ON IMPROVING BALANCE AND GAIT PARAMETERS IN CHRONIC STROKE PATIENTS.

Shri Abirami Vasudevan[1], Dr. Sugasri Sureshkumar[2].
[1]PG Student, Meenakshi College of Physiotherapy, Meenakshi Academy of Higher Education and Research,
[2]HOD of PT in Neuroscience, Meenakshi College of Physiotherapy, Meenakshi Academy of Higher Education and Research.

Background: Stroke can lead to major movement issues, affecting balance and walking. This study compares aquatic treadmill training (ATT) to body-weight supported treadmill training (BWSTT) in chronic stroke patients in improving balance and gait parameters. These interventions utilize principles of task-specific training and neuroplasticity to enhance motor recovery and functional mobility.

Purpose: To compare the effectiveness of aquatic treadmill training and body-weight supported treadmill training in improving balance, gait parameters, and functional independence in individuals with chronic stroke.

Methods & Materials: Thirty first-ever stroke patients were recruited and randomly allocated to a control group and an experimental group. The control group received 40 minutes of BWSTT (PhysioGait 360) training, while the experimental group performed 20 minutes of ATT (Pooltrack Underwater Treadmill) and 20 minutes of BWSTT. Additionally, all participants received 30 minutes of conventional physiotherapy three times per week for 8 weeks (24 sessions) under supervised rehabilitation settings. Outcome measures included lower limb strength, balance, gait parameters, and functional independence assessed using Berg Balance Scale (BBS), 10 Meter Walk Test (10MWT), and Activities-specific Balance Confidence (ABC) scale.

Results: From pre- to post-intervention, statistically significant improvements were observed in the 10MWT (0.480±0.21 to 0.567±0.23, $p < 0.002$), BBS (38.39±13.46 to 46.93±12.32, $p<0.001$), and ABC (39.66±8.63 to 43.80±5.21, $p<0.001$). Step-length symmetry (1.279±0.23 to 1.211±0.21, $p=0.109$) and overall temporal symmetry (1.504±0.36 to 1.414±0.34, $p=0.218$) showed improvement without statistical significance.

Conclusion: These findings suggest that combining aquatic treadmill training with body-weight supported treadmill training enhances functional gait recovery. This combined approach may improve patient confidence, promote better weight-bearing, and support effective rehabilitation outcomes in chronic stroke populations.

Keywords: Stroke, Balance, Gait motion, Aquatic therapy, Treadmill Training