

## Effect of Rhythmic Auditory Stimulation on Gait in Patients with Stroke

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**Abstract :** Background: Stroke is the most leading cause to functional disability and gait problems. Objectives: The purpose of this study was to determine the effect of rhythmic auditory stimulation combined with treadmill training on selected gait kinematics in stroke patients. Methods: Thirty male stroke patients participated in this study. The patients were assigned randomly into two equal groups, (study and control). Patients in the study group received treadmill training combined with rhythmic auditory stimulation in addition to selected physical therapy program for hemiparetic patients. Patients in the control group received treadmill training in addition to the same selected physical therapy program including strengthening, stretching, weight bearing, balance exercises and gait training. Biodex gait trainer 2 TM was used to assess selected gait kinematics (step length, step cycle, walking speed, time on each foot and ambulation index) before and after six weeks training period (end of treatment) for both groups. Results: There was a statistically significant increase in walking speed, step cycle, step length, percent of the time on each foot and ambulation index in both groups post-treatment. The improvement in gait parameters post-treatment was significantly higher in the study group compared to the control. Conclusion: Rhythmic auditory stimulation combined with treadmill training is effective in improving selected gait kinematics in stroke patients when added to the selected physical therapy program.

**Keywords :** stroke, rhythmic auditory stimulation, treadmill training, gait kinematics

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