

Effectivity of Combined Rhythmic Auditory Stimulation Rehabilitation Approach on Gait post Stroke

Abstract

Background: this review is assessing the effectiveness of combining forms of rhythmic auditory stimulation (a form of neurologic music therapy) to commonly used physiotherapeutic methods in the treatment of gait for hemiplegic/paresis stroke patients.

Aim: to evaluate the extent in which Rhythmic Auditory Stimulation (RAS) combined therapy has a positive effect on gait for stroke patients, and whether RAS combined therapy is a more effective approach than conventional physiotherapeutic approaches.

Methods: Databases Cochrane Central Register of Controlled Trials, Pubmed and Science Direct were searched. All databases were searched using a publication year range from 2009-2022. Studies accepted were either Randomized Control Trials, Clinical Control Trails or Case Control Studies, evaluating RAS combined therapy versus conventional physiotherapeutic methods for Hemiplegic/paresis stroke patients. The outcome measures evaluated were gait and balance ability, according to spatiotemporal gait parameters and balance or lower extremity function assessments. Data was extracted according to PRISMA guidelines as well as with the help of a reference manager. The studies were analysed for risk of bias according to the PEDro Quality Scale by the author.

Results: a total of eight studies were analysed in this research with a total of 266 patients. RAS combined therapy proves to have a strong positive effect on hemiparesis stroke gait rehabilitation, as a total of 97.8% of the experimental groups' outcome measures from baseline had improved. RAS combined therapy has also proven to be a superior treatment option compared to conventional physiotherapeutic methods due to two factors: 1) the control groups having a total of 80.2% of improved outcome measures from baseline, indicate the experimental group to have a statistically significant higher outcome measure improvement from baseline. 2) From the 97.2% of improved experimental groups outcome measures from baseline, 62.2% showed greater significant improvement in comparison to the control groups outcome measures, while 0% from the 80.2% of improved control group outcome measures from baseline showed greater statistical significance to the experimental group. Therefore results indicated 61% of outcome measures measured post RAS combined therapy to be more effective in hemiparesis stroke gait rehabilitation in comparison to conventional physiotherapeutic methods.

Conclusion: RAS combined therapy is a very strongly effective rehabilitation approach in treating hemiparesis stroke gait pathologies and has proven to be a better treatment option than conventional therapeutic methods. However, the generalizability of the results are limited as the research analysed a small number of studies also consisting small study populations. Additionally, as all eight studies focused on chronic stroke, it is unreliable to conclude the findings to be true for acute and subacute stages of stroke.

