

The Effect of Music-based Rhythmic Auditory Stimulation on Balance and Functional Outcomes after Stroke

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Editorial

Improvement in walking is one of the stroke variables that has been researched the most and in relation to this, it is typical to analyse balance as a secondary variable. Physiotherapy, which is a combination of cardiorespiratory endurance and strength training, is the most researched kind of rehabilitation for balance following a stroke. A potent and adaptable therapy strategy for restoring functional capacities in neurologic disorders has emerged: music-based interventions. The use of musical instruments or technological equipment for active music listening and active music playing are examples of music-based therapies. The effectiveness of music-based therapies to address gait abnormalities or upper extremity functional abilities in neurorehabilitation has been demonstrated in a number of clinical investigations [1]

Best studies either include whole brain strokes or, at most, distinguish between ischemic and hemorrhagic strokes. There have also been a few studies that compare the impact of RAS on the two hemispheres, such as those by Kobinata and Thaut, which additionally assessed the impact according to the location of the lesion. The grey matter volume in the frontal and limbic regions both contralaterally and homolaterally to the lesion increased following daily music listening in stroke patients with a middle cerebral artery. This gain in cognitive abilities and a decrease in depressive symptoms compared to the patients' pre-musical state were directly associated to this rise [2].

There is some uncertainty as to whether balance ability improves in the same way as gait following RAS treatments. Current research on the impact of RAS on post-stroke balance capacity is incredibly conflicting. There have been a variety of different outcomes discovered, depending on the scale that was employed to analyze the variable. Clinical investigations show a considerable increase in the capacity to balance in the RAS group, although meta-analyses and systematic reviews have different opinions about the quality of the research, how well they were done and whether or not they can be used to enhance balance [3].

Despite the obvious functional gains following music-based RAS, the effects on lesion sites and the cerebral hemisphere have not been extensively investigated. The premise of this study was that music-based RAS would be successful in enhancing post-stroke balance and motor function in our health sector and those clinical and demographic disparities would be evident. This study sought to determine whether there were any changes in the effects of rhythmic auditory stimulation based on music on balance and motor function following stroke according to the afflicted hemisphere, lesion location and age.

The Mini Best Test, the Motor Assessment Scale and the Tinetti Test were used to assess balance ability and motor function as dependent variables.

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The Mini Best Test, used to assess balancing ability, is made up of 14 parts that examine four of the six components of the original Best Test: dynamic gait, predicted postural changes, reactive postural control and reactive postural control. A player can get up to 28 points. Eight questions on the Motor Assessment Scale—two for leg mobility, three for functional testing of the lower leg and three for upper-limb function—are used to assess motor function.

Age, stroke type, the affected hemisphere's location, the severity of motor impairment and the lesion site all served as independent factors in the study. According to Ghai systematics review and meta-analysis, two age groups under 60 and 60 or over were analyzed. Magnetic resonance imaging (MRI) was used to categorize the kind of stroke as either hemorrhagic or ischemic. There are left and right hemispheres. The regions of the lesion site were divided into sections that were innervated by the basal ganglia, vertebrobasilar region, lacunar area and thalamic region. They were also divided into areas that were innervated by the middle cerebral artery and the anterior cerebral artery. Hemiplegia and hemiparesis were used to describe the degree of motor dysfunction [4,5].

Conclusion

This observational and longitudinal investigation raises the possibility that rhythmic auditory stimulation based on music may have an impact on motor and balance abilities regardless of the kind of stroke or the afflicted hemisphere of the brain lesion. A key determinant of outcome is the level of motor impairment upon admission. The results varied according on the assessment scale or test that was used and the factors that the tests examined.

Conflict of Interest

None.

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