RHYTHMIC AUDITORY STIMULATION IN HEALTH CARE

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INTRODUCTION

One of the primary goals of rehabilitation is to restore mobility through gait training. Recent advances in technology and medical research have revealed the role of rhythmic auditory stimulation (RAS) as an internalized time keeper for rhythmic patterned movements. The purpose of this review was to explore the use of RAS in hemiparetic gait, parkinson's disease, traumatic brain injuries, cerebral palsy, Huntington's disease, Alzheimer's disease and multiple sclerosis, and the

PARKINSON'S

DISEASE

that RAS can be used

with success to improve

cadence, velocity, stride length and step rate.

parameters of gait -

facilitate attentional

RAS can also

processing.

Several studies indicate

benefit of RAS in Health Care. It is now well established that the auditory system has richly distributed fibre connections to motor centres from the spinal cord upward on brain stem subcortical and cortical levels. ¹

Auditory cueing has been suggested to modulate neuro magnetic oscillations, enhance biological motion, perception, promote motor imagery, mediate cortical reorganization and neural plasticity. ²

HEMIPARETIC GAIT

Several studies indicate improvement of:

- Spatio temporal gait patterns.
- · Dynamic postural stability.
- Balance.

An increase of cadence, step length and dynamic gait index during RAS.

TRAUMATIC BRAIN INJURY

3 studies indicate increased:

- Cadence
- Gait velocity and stride symmetry
- Length of steps with RAS.

MULTIPLE SCLEROSIS

3 Studies indicate improvement of:

- Cadence, stride length, step length, velocity and gait kinematic parameters.
 - Coordination, balance, fatigue,and quality of life with RAS.

ALZHEIMER'S DISEASE

 1 study indicate improved gait.
A combination of metronome and music showed best results with RAS.

HUNTINGTON'S DISEASE

External cueing show no statistically significant positive impact in HD.

• RAS can however facilitate improvement in locomotor function.

CEREBRAL PALSY

9 studies reviewed suggested beneficial effects of RAS on gait performance. This include improved velocity, cadence, stride length and symmetry.

CONCLUSION

Multiple systematic reviews confirm that intensive and repetitive application of RAS leads to functional changes. ³ RAS has no side-effects, it is cost-effective, can be used in conjunction with other modalities, and is a motivational method of gait rehabilitation. ⁴









