

CAHE *Allied Health News in Review*

Can music influence clinical stroke outcomes?

Article Background

'Music therapy improves strokes outcomes'; reported by R Preidt for *HealthDay*, 20 February 2008 (www.nlm.nih.gov/medlineplus/news/fullstory_61381.html)

The origin of the evidence (research): This news report was based on a clinical trial conducted by researchers from the: University of Helsinki, Helsinki Brain Research Centre, University of Jyväskylä, Helsinki University Central Hospital, Abo Akademi University and University of Montreal. Funding was received from: Academy of Finland, Jenny and Antti Wihuri Foundation, National Graduate School of Psychology and Neurology Foundation (Helsinki, Finland).

The objectives of the evidence (research): To evaluate whether regular, self-directed music listening during the first two months after middle cerebral artery (MCA) stroke can enhance the recovery of cognitive functions and mood.

The nature of the evidence (research): Randomised controlled trial (single-blind (outcome assessors))

Setting of the research: Department of Neurology, Helsinki University Central Hospital, Finland

Participants involved in the research: N:60 inpatients (6-participants were lost to follow-up at 6-months)

Inclusion criteria: acute ischaemic MCA stroke in the L or R temporal, frontal, parietal or sub-cortical brain regions; no prior neurological or psychiatric disease; no drug or alcohol abuse; no hearing deficit; R-hand dominant; ≤ 75 -years; Finnish speaking.

Interventions utilised: Treatment: 1-hour per day (minimum) of self-directed (and self-selected) music listening for two-months; encouragement and support was received from weekly meetings with a music therapist who also provided portable CD-players and preferred listening material.

There were two control arms: a) 'language group' which followed the same protocol as the intervention group with the exception that participants in this group were provided with audio books, and b) 'normal recovery' group: no auditory stimulation. All participants received 'standard treatment for stroke and rehabilitation' (not defined).

Outcome measures: Primary outcomes were: verbal memory, short-term & working memory, language, visuospatial cognition, focussed attention (correct responses & reaction times), sustained attention (correct responses & reaction times), music cognition, and executive functions.

Secondary outcomes were: Shortened Finnish version of the 'Profile of Moods States' with subscales for: tension, depression, irritability, vigour, fatigue, inertia, confusion, and forgetfulness; self and proxy-reported 'Stroke & Aphasia Quality of Life Scale-39'. Outcomes assessed at baseline (1-week); 3-months and 6-months

Key findings: Change scores at the 3-month evaluation demonstrated verbal memory recovery was significantly better in the music group than in the language group ($p= 0.006$) or in the control group ($p= 0.049$). Focused attention recovery (correct responses) trended better in the music group than in the language group ($p= 0.058$) but was significantly better in the music group than in the control group ($p= 0.049$).

At the 6-month stage, verbal memory recovery remained significantly better in the music group than in the language group ($p= 0.006$), with focused attention recovery also remaining significantly better in the music group than in either the control group ($p= 0.008$) or the language group ($p= 0.016$). There were no other significant comparative effects concerning cognitive outcomes.

Concerning 'mood', there were no significant differences between groups from baseline to 6-months; however, there were differences noted when the data was analysed in a cross-sectional manner at 3- and 6-months i.e. at 3-months, there were positive group differences favouring the intervention in comparison to the control re: depression ($p=0.024$) and confusion ($p=0.061$) scores. There were no significant group differences in self-rated or proxy-rated QOL at 3- or 6-months.

Validity of methodology and reliability of conclusions: PEDro Scale score: 7/10 (unfulfilled criteria: subjects not blinded; therapists not blinded; intention to treat (unclear)).

Whilst the intervention and the comparators were appropriately described, the publication may have been strengthened through a description of the hospital's standard rehabilitation program. Additionally, possible cross-over effects on motor functions were not explored).

Clinical implications: Regular self-directed music listening during the 2-month sub-acute phase of MCA stroke recovery enhanced some aspects of cognitive function, namely verbal memory and focused attention. There was also some evidence that music listening made an impact on mood.

Whilst there is clearly a need for further research to substantiate the authors observations, as acute stroke patients often spend a large amount of their time in non-therapeutic activities, mostly in their rooms, inactive and without any interaction, music listening may provide an inexpensive practical manner to afford supplementary individually targeted stimulation that may augment plastic changes.

References:

Särkämö T, Tervaniemi M, Laitinen S et al (2008): Music listening enhances cognitive recovery and mood after middle cerebral artery stroke. *Brain* 131: 866-876.

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