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A Summary of a Cochrane Review: Music interventions for acquired brain injury

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1. Introduction

Review authors in the Cochrane Collaboration updated a review of the effects of music in adults with acquired brain injury. After searching for all relevant studies, they identified 29 studies comparing music interventions to usual care in people with acquired brain injury. This summary presents the findings of this review.

1.1. Acquired brain injury and music

Acquired brain injury is when the brain is damaged by an accident (e.g., a blow to the head) or illness (e.g., stroke, infection). Acquired brain injury often leads to problems with movement, language, thinking, and emotion. Adults with acquired brain injury are also at high risk of depression and lower quality of life. Therapy for acquired brain injury typically focuses on restoring brain and physical function, and preventing and treating depression. Music interventions have been used in these people and are different than passively listening to music. Health professionals provide the music therapy and the interventions are tailored to each individual. Activities could include listening to, moving to, composing, creating, or performing music; singing or doing language activities with music; or combining music with another therapy (such as imagery). This review questioned whether any music interventions directed by a health or music therapy professional could improve movement, communication, thinking, emotional, or quality of life outcomes in adults with acquired brain injury.

2. What does the research say?

There were 29 studies with 775 people who randomly received or did not receive a music intervention. Almost all the participants in the studies had brain injuries as a result of stroke. The studies were carried out in 10 different countries, with the majority of studies conducted in South Korea or the United States. In 19 studies, live or pre-recorded music interventions were offered by professionals. Some of these interventions involved listening to music while

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others included active music making. In the remaining 10 studies a rhythmic pulse without other musical elements was provided. The number of music sessions provided ranged from 1 to 60, the length of each session ranged from 10 minutes to two hours, and the frequency of sessions ranged from a single session to 10 sessions per week.

Our overall certainty in the evidence for the effects was moderate to very low. Several studies had problems in how they were conducted. For example, some studies did not randomise people, while other studies did not prevent the people measuring outcomes from knowing what treatment the participants were receiving. The total amount of the people in the combined studies was small or very small, and this also led us to be uncertain about the effects found in the review. Finally, in many cases, the results from individual studies were very inconsistent, and there is still some uncertainty about whether the effects are large or small. Based on the evidence to date, for people with acquired brain injury, music interventions will likely improve their walking speed and walking rate, and may improve the length and symmetry of their walking stride. It is uncertain whether music interventions may improve their upper arm function, quality of life or their ability to communicate. No studies reported on adverse events (see Table 1).

3. Where does this information come from?

This summary is based on a Cochrane systematic review: Magee WL, Clark I, Tamplin J, Bradt J. Music interventions for acquired brain injury. *Cochrane Database of Systematic Reviews* 2017, Issue 1. Art. No.: CD006787. DOI: 10.1002/14651858.CD006787.pub3.

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Summary of Findings Table: Effects of music interventions for people with acquired brain injury

What was measured	Effect when receiving music intervention*	Quality of the evidence	What happens when receiving a music intervention
Walking speed (9 studies, 268 people) Measured in metres/minute.	On average 11.34 more metres/minute (from 8.4 to 14.28 more)	⊕⊕⊕⊖ moderate ^a	Walking speed is probably improved with music
Stride length (affected side) (5 studies, 129 people) Measured in metres.	On average 0.12 more metres (from 0.04 to 0.2 more)	⊕⊕⊕⊖ low ^b	Stride length may be improved with music.
Walking rate (7 studies, 223 people) Measured in steps/minute.	On average 10.77 more steps/minute (from 4.36 to 17.18 more)	⊕⊕⊕⊖ moderate ^a	The number of steps per minute is probably improved with music
Stride symmetry (how evenly people walk) (3 studies, 139 people) Greater than 0.8 means large effect.	On average 0.94 SMD units higher (from 0.32 lower to 2.20 higher)	⊕⊕⊕⊖ low ^b	Stride symmetry may be improved with music.
Upper extremity functioning (5 studies, 194 people) Measured on the Fugl-Meyer Assessment (range 0-66, better)	On average 3.56 units higher (from 0.88 lower to 8 higher)	⊕⊕⊕⊖ very low ^c	It is uncertain whether general upper extremity functioning may be improved with music.
Overall communication (3 studies, 67 people) From 0.5-0.8 means moderate effect.	On average 0.75 SMD units higher (from 0.11 to 1.39 higher)	⊕⊕⊕⊖ very low ^c	It is uncertain whether overall communication may be improved with music.
Quality of Life (2 studies, 53 people) Measured by the Stroke Specific Quality of Life Scale (range 49-245, better).	On average 15.5 units higher (from 5.6 to 25.4 higher)	⊕⊕⊕⊖ very low ^c	It is uncertain whether quality of life may be improved with music.
Adverse events	-	-	No studies reported on adverse events

* The numbers in the brackets show the range in which the actual effect could be using a 95% confidence interval.

^a Evidence was moderate quality because there were few people in the studies, and some inconsistency between individual studies.

^b Evidence was low quality because there were few people in the studies, and inconsistency between individual studies.

^c Evidence was very low quality because some of the studies were poorly conducted, there were few people in the studies, and for upper arm function there was inconsistency between individual studies.