



# Research Shows the Influence of Music Benefits Acute Neuro Patients

By [nicespeechlady.com](https://nicespeechlady.com) / July 25, 2021 / [Edit post](#)

[Nice Speech Lady](#) is highlighting various research articles which describe medical SLP applications that can be utilized in a practical manner at the next indicated, scheduled session for patients we have in mind.

One such study is from 2020. It is entitled: [“Neurologic Music Therapy in multidisciplinary acute stroke rehabilitation: Could it be feasible and helpful?”](#)

“As engaging in music has been known to facilitating neuroplasticity,” [The Brain Injury Association of America](#) defines Neurologic Music Therapy as: the therapeutic use of music applied to sensory, speech and language, cognitive, and motor dysfunctions after a neurologic event or diagnosis. The therapy is based on neuroscience research on how music is processed and perceived in the brain, and how we can use that as a tool in neurorehabilitation to improve non-musical goals.”

[The Academy of Neurological Music Therapy](#) described NMT as: “a research-guided clinical model that is driven by advances in neuroscience and the understanding of the perception, production, and performance of music and how music can influence and change non-musical brain and behavior function.”

Details from the above 2020 study on NMT in acute stroke rehab included:

- 177 patients were utilized in the study, over a full two-year period.
- “Music has been shown to benefit motivation and impact fatigue reduction” – it was noted earlier in the article (Lim, Miller, Fabian).
- “There may be added value for multidisciplinary neurorehabilitation and patient benefit, through the inclusion of NMT as part of standard care,” the article noted.
- The study setup twice a week Neurologic Music Therapy (NMT) sessions. Patients, relatives, as well as staff members were asked to rate the NMT interventions as either: “1. Not helpful, 2. Quite helpful, 3. Helpful, 4., or Very helpful.”
  - Patients were asked: “What did you think of the NMT sessions?”
  - Staff were asked: “What did you think about NMT as an intervention for patients?” and “What do you think about NMT as part of the multidisciplinary team?”
  - Relatives were asked: “What do you think about NMT as part of stroke rehabilitation?”
- [The Visual Analogue Mood Scale \(VAMS\)](#) was administered as part of the data collection pre/post session process, typically on the first session of NMT.
- NMT multidisciplinary sessions were delivered in a number of rooms, on the unit, one of which being speech pathology treatment rooms in the context of speech pathology treatments. NMT was delivered as such: “Sensorimotor exercises for a full range of movement including sit-to-stand, upper, and lower limb (including gait), were facilitated using



hand percussion, drums, keyboard and touchscreen tablet, either on stands or hand-held. Cognitive training exercises, particularly targeting sustained, alternating, divided and selective attention, and executive function, were facilitated using drums and percussion on stands, where patients copied increasingly complex rhythmic patterns, self-monitoring for errors, and feeding back to the therapist in order to indicate attention and executive function progress. Exercises for speech, targeting articulation, breath control, speech rate, speech fluency, and/or word retrieval and production utilized familiar song singing, completing the missing lyric (gap-fill) for target words (for example, the word at the end of each chorus line), melodic intonation therapy, and rhythmic speech cueing.”

- Clinicians, such as PT, OT, ST and others – including patients – were consulted regarding the context of the planned NMT activities, as these patients were already on the caseloads for these disciplines.
- Technology, such as iPads were utilized in the process of simulating instruments.
- Some offered participants declined NMT; the primary reason for this was due to reports of fatigue.
- There was a section in the article that discussed how speech therapists in particular made comments about the benefits of NMT: “Observing and co-facilitating NMT sessions sometimes assisted speech and language therapists in finding ways to deliver their interventions, as they could observe different mechanisms of a patient’s communicative intent during music-based exercises. They observed that the music and equipment stimulated arousal, awareness and attention levels in a particular way, functioning via non-verbal interactions, such as turn-taking and call and response using vocalizations or percussion. This enabled patients with significant cognitive difficulties and/or aphasia to understand and take part, without the need for verbal instruction. Speech therapists commented that the music-based exercises contributed toward some patients overcoming low mood and fatigue, thus increasing engagement in rehabilitation. These comments correspond with research findings reporting on the benefits of arousal and affect regulation, learning, activity-driven plasticity and possibly causing less fatigue (Fritz, Hardikar, Demoucron). Singing familiar songs and using songs as gap-fill exercises helped some patients with, for example aphasia, apraxia, and/or dysarthria, experience moments of fluent output. Therapists observed this to be motivating for patients and relatives.”
- There are potential uses apps that incorporate music during visits for the purposes listed above.
- Enhanced rehabilitation outcomes and improved quality of life might be the result of the emotional effects and the impact of neuroplasticity because it affects reward, arousal and affects regulation (Sihvonen, Särkämö, Leo, Tervaniemi, Altenmüller, Soinila).
- The overall conclusion of the study suggests that NMT was “feasible” and “helpful,” – especially for the mood of patients. It was noted that this may have improved rehabilitation engagement of the patients. More research is needed, it was stated, to “to determine generalizability in different stroke environments and treatment effects within them.”

So, fellow SLPs, how can we apply these findings in our sessions?

- While most SLPs are not dually certified as NMTs, it is possible that there may be a benefit in incorporating music in some contexts of activities that SLPs are already facilitating.



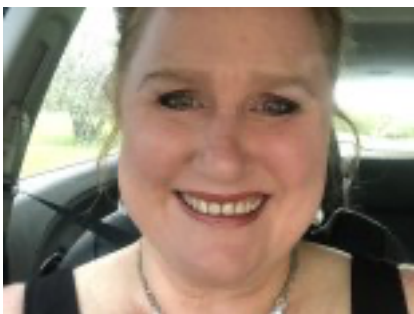
- The research above was based on the neurological population, so it stands to reason this is the starting-place for application.
- The focus of pairing music with the already-planned SLP activities has a likelihood to improve mood, and by association, engagement. This improved engagement might translate into more effective outcomes due to increases in attention to tasks.
- We could utilize apps that incorporate music in sessions to encourage attention, participation and motivation, perhaps at times where there is need for addressing these areas, particularly in neurological patients.
- We may need to keep in mind that patients may decline utilizing music in sessions if they are experiencing fatigue, such as what was seen in a percentage of attempted participants in the study. There may be other reasons as well.
- When considering quality of life, we could consider incorporating music into the choice of activities or options to give to the patient in the available tasks. We can keep music at the forefront of our minds as we think about finding all of the various ways to achieve therapy goals/outcomes.
- We could also learn more about NMT and pursue formal training as well. [The Academy of Neurological Music Academy](#) has courses that clinicians can pursue. The website lists intensive four-day courses for clinicians for continuing education opportunities.

#### References:

[Lim HA, Miller K, Fabian C. The effects of therapeutic instrumental music performance on endurance level, self-perceived fatigue level, and self-perceived exertion of inpatients in physical rehabilitation. \*J Music Ther.\* 2011;48\(2\):124. doi:10.1093/jmt/48.2.124.](#)

[Fritz TH, Hardikar S, Demoucron M, et al. Musical agency reduces perceived exertion during strenuous physical performance. \(PSYCHOLOGICAL AND COGNITIVE SCIENCES\) \(Report\) \(Author abstract\). \*Proc Natl Acad Sci USA.\* 2013;110\(44\):17784. doi:10.1073/pnas.1217252110.](#)

[Sihvonen AJ, Särkämö T, Leo V, Tervaniemi M, Altenmüller E, Soinila S. Music-based interventions in neurological rehabilitation. \*Lancet Neurol.\* 2017;16\(8\):648–660. doi:10.1016/S1474-4422\(17\)30168-0.](#)



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