

# Listening to vocal music boosts the recovery of language functions after stroke

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Research has shown that listening to music daily improves language recovery in patients who have experienced a stroke. However, the neural mechanisms underlying the phenomenon have so far remained unknown.

A study conducted at the University of Helsinki and the Turku University Hospital Neurocenter compared the effect of listening to vocal [music](#), instrumental music and audiobooks on the structural and functional [recovery](#) of the [language](#) network of patients who had suffered an acute stroke. In addition, the study investigated the links between such changes and language recovery during a three-month follow-up period. The study was published in the *eNeuro* journal.

Based on the findings, listening to vocal music improved the recovery of the structural connectivity of the language network in the left [frontal lobe](#) compared to listening to audiobooks. These structural changes correlated with the recovery of language skills.

"For the first time, we were able to demonstrate that the positive effects of vocal music are related to the structural and functional plasticity of the language network. This expands our understanding of the mechanisms of action of music-based neurological [rehabilitation](#) methods," says Postdoctoral Researcher Aleksi Sihvonen.

## **Listening to music supports other rehabilitation**

Aphasia, a language impairment resulting from a stroke, causes considerable suffering to patients and their families. Current therapies help in the rehabilitation of language impairments, but the results vary and the necessary rehabilitation is often not available to a sufficient degree and early enough.

"Listening to vocal music can be considered a measure that enhances conventional forms of rehabilitation in healthcare. Such activity can be easily, safely and efficiently arranged even in the early stages of rehabilitation," Sihvonen says.

According to Sihvonen, listening to music could be used as a cost-

efficient boost to normal rehabilitation, or for rehabilitating patients with mild speech disorders when other rehabilitation options are scarce.

After a disturbance of the cerebral circulation, the brain needs stimulation to recover as well as possible. This is the goal of conventional rehabilitation methods as well.

"Unfortunately, a lot of the time spent in hospital is not stimulating. At these times, listening to music could serve as an additional and sensible rehabilitation measure that can have a positive effect on recovery, improving the prognosis," Sihvonen adds.

**More information:** Aleksi J. Sihvonen et al, Vocal Music Listening Enhances Poststroke Language Network Reorganization, *eNeuro* (2021). [DOI: 10.1523/ENEURO.0158-21.2021](https://doi.org/10.1523/ENEURO.0158-21.2021)

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