

1. Johnson L, Yourganov G, Basilakos A, et al. **Functional Connectivity and Speech Entrainment Improves Connectivity Between Anterior and Posterior Cortical Speech Areas in Non-fluent Aphasia.** *Neurorehabilitation and Neural Repair*. December 2021. doi:[10.1177/15459683211064264](https://doi.org/10.1177/15459683211064264)

Background; Speech entrainment (SE), the online mimicking of an audio-visual speech model, has been shown to increase speech fluency in individuals with non-fluent aphasia. One theory that may explain why SE improves speech output is that it synchronizes functional connectivity between anterior and posterior language regions to be more similar to that of neurotypical speakers.

Objectives; The present study tested this by measuring functional connectivity between 2 regions shown to be necessary for speech production, and their right hemisphere homologues, in 24 persons with aphasia compared to 20 controls during both free (spontaneous) speech and SE.

Methods; Regional functional connectivity in participants with aphasia were normalized to the control data. Two analyses were then carried out: (1) normalized functional connectivity was compared between persons with aphasia and controls during free speech and SE and (2) stepwise linear models with leave-one-out cross-validation including normed functional connectivity during both tasks and proportion damage to the left hemisphere as independent variables were created for each language score.

Results; Left anterior–posterior functional connectivity and left posterior to right anterior functional connectivity were significantly more similar to connectivity of the control group during SE compared to free speech. Additionally, connectivity during free speech was more associated with language measures than connectivity during SE.

Conclusions; Overall, these results suggest that SE promotes normalization of functional connectivity (i.e., return to patterns observed in neurotypical controls), which may explain why individuals with non-fluent aphasia produce more fluent speech during SE compared to spontaneous speech.