

The neurophysiology of vocal imitation of speech

ABSTRACT:

Humans tend to spontaneously and automatically imitate aspects of their conversation partner's speech patterns. The ability to imitate others' speech is essential for effective communication; it is required for learning to speak our native language, to be able to understand others in challenging listening conditions such as background noise, and to streamline social interaction between conversation partners. Yet, the ability to inhibit automatic vocal imitation is equally important, in order to avoid unwanted imitation of others' speech. Being unable to suppress unwanted imitation, as may be the case in autism or following a stroke, can be severely debilitating in daily life. The project aimed to elucidate the neurophysiological substrates supporting automatic vocal imitation of speech. Transcranial Magnetic Stimulation (TMS) study 1 replicated results on inhibition of manual actions and extended these results to inhibition of vocal actions and Study 2 targeted the role of Inferior Frontal Gyrus in automatic imitation of speech. Two behavioural studies tested a measure for covert automatic imitation. This measure effectively shows to which extent speech motor patterns are activated while perceiving speech actions. The results showed that listeners show covert automatic imitation for vowel stimuli.

Keywords

Speech, Imitation, Transcranial magnetic stimulation

Published Work:

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