

Functional organization of the auditory cortex is different in stutterers and fluent speakers

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Abstract

IMPAIRED auditory feedback has been suggested to cause stuttering, and subtle irregularities of audition have been reported in behavioural studies. To characterize processing at the auditory cortical level, we recorded neuromagnetic responses to monaural tones in nine stutterers and 10 fluent speakers while the subjects were reading silently, with mouth movements only, aloud, and in chorus with another person. The basic functional organization of the auditory cortices was found to be different in stutterers and controls. The altered inter-hemispheric balance in stutterers was affected by speech production, due to changes in the left auditory cortical representation, and more severely by self-paced than accompanied speech. This may lead to transient non-optimal interpretation of the auditory input and affect speech fluency.