

Interaction of sensory and motor processes in individuals who stutter

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The goals of this study are to better understand how the brain of individuals who stutter integrates incoming information (for example, auditory signals) into the planning and execution of speech and nonspeech movements, and how these processes differ between stuttering and nonstuttering speakers. Specifically, this work tests the interaction of sensory and motor processes both during and prior to the initiation of movements. Electrode cap recordings (electroencephalography, EEG) of the brain's sensory responses (for example, the response to an external sound or one's own voice) are made both before and during speech production. The results of this study are expected to provide new insights into the physiological component of stuttering.

The procedures involve recording the EEG signal with electrodes that are positioned in an elastic cap. The cap contains 128 plastic holders that are filled with conductive electrode gel. The actual electrodes are then clicked into the holders. If the task involves the performance of movements, muscle activation will be recorded by placing additional electrodes on the skin over the primary muscles involved in the task. Participants typically sit in front of a computer monitor while wearing insert earphones and read words out loud or perform other movements. The total time to complete a study is usually 2 – 2.5 hours.