

Cortical and Subcortical Contributions to Ororhythmic Behavior.  
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**OBJECTIVE:** To determine the extent of shared cortical and subcortical (particularly brainstem) neural correlates of healthy adult ororhythmic speech and nonspeech tasks.

**METHODS:** An ongoing randomized block design fMRI study with clustered volume acquisition is used to identify neural correlates of three ororhythmic tasks (suck, mastication, and speech) performed by a group of healthy adults. Task-specific significant activations are identified by multiple regression analysis and are then compared using conjunction analysis to identify common and/or task specific areas.

**RESULTS:** An initial GLM single study analysis indicates significantly active correlates of each task within one subject. Bilateral cortical and subcortical activations correlated to the three tasks are shared by the following regions: inferiolateral cortex, insula, anterior cerebellum, and pontomedullary junction. The magnitude and spread of these regional activations appear to vary by task.

**DISCUSSION:** Findings that substantiate these initial observations would support the notion of shared neural substrate underlying the rhythmic components of speech and certain nonspeech behaviors. An alternative hypothesis may suggest that no common task-specific activations are evident among the three tasks, and thus would provide experimental support that speech is an entity of the oromotor repertoire which is distinct from suck and mastication.

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