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Encoding Speech Sounds in the Brain: A Neurophonetic Perspective on Utterance Planning

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Abstract

Speech production is a dynamic process that begins long before articulation. Although speech comprehension has been widely studied, the neural encoding of speech sounds during utterance planning remains underexplored. This paper aims to investigate how the human brain prepares and organizes phonetic elements prior to speech initiation. Drawing from research in neurolinguistics and phonetics, I explore the cognitive and motor processes that support the transformation of linguistic intention into phonological and articulatory plans. The discussion highlights the roles of cortical regions, such as Broca's area and the motor cortex, in encoding features of place and manner of articulation, prosodic structure, and segmental sequencing. This study also reflects on the implications of neurophonetic findings for understanding speech errors, fluency, and language disorders. By shifting focus toward pre-articulatory planning, the paper seeks to enrich our understanding of the cognitive architecture underlying speech production.

Keywords: Utterance planning, Neurophonetics, Phonological encoding, Speech production, EEG/ERP

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