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**Form and Function:
Another View of Speech Production.**

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ABSTRACT

Form of body determines neural function. The present study discusses this biological concept as a central issue to explore morphological foundations of speech function. Physiological studies of vocal frequency (F0) control and vowel production mechanisms are reviewed to show evidence that human speech is dependent on unique morphology of our body. The form of the cervical organs (larynx and cervical spine) facilitates wide-range F0 change by their movements. The geometry of the tongue and vocal tract derives compatibility of vowel's auditory and articulatory pattern, which suggests a functional linkage between vowel production and perception. Furthermore, interaction between mechanisms for producing F0 and vowel results in a constant vocal tract shape for a given vowel with varying vocal tract length. Neural reflection of the interaction implies an account on the mechanism of vowel normalization. A unified model of vowel production and perception is proposed.

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