

Title: Articulatory Movements in Amyotrophic Lateral Sclerosis: Tongue and Jaw Interactions

Authors: Shellikeri, S., Yunusova, Y., Green, J., & Zinman, L.

Purpose: This study reports maximum speed, range, cumulative distance and duration of tongue and jaw movements during speech by healthy speakers and speakers with Amyotrophic Lateral Sclerosis (ALS). The study asked the following questions:(1) How do the tongue and jaw in ALS differ from healthy controls?; (2) How do the tongue and jaw change at different stages of disease?; (3) How do the tongue and jaw interact with each other?

Method: Forty-seven individuals with ALS and 16 healthy controls participated. Disease severity was determined based on speaking rate. *Buy Bobby and Puppy* and *Say that you owe me a yoyo today* were repeated 10 times by each participant. Kinematic measures of the tongue and jaw were measured.

Results: 1) Speakers with ALS have a) a significantly larger cumulative distance of tongue movement and b) a significantly larger maximum speed of jaw movement. 2) Range of jaw shows a tendency to increase at a moderate stage. 3) tongue and jaw cumulative distances show a negative correlation in the moderate stage, and a strong positive correlation in the severe stage.

Discussion: The data is suggestive of the compensatory interactions between the tongue and jaw at the moderate stage of disease.