

Acoustic consequences of disease progression in ALS  
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The progression of bulbar symptoms in individuals diagnosed with amyotrophic lateral sclerosis (ALS) is not well understood. Cross-sectional studies suggest that acoustic measures such as segment durations, vowel formant frequencies, slopes and extents of the second formant (F2) as well as acoustic vowel space might be sensitive to documenting the time course of the disease, including its onset and major phases of progression. They also might be effective in predicting speech intelligibility and speaking rate changes in ALS. Substantial across-subject variability in onset and progression of speech symptoms tends to interfere with understanding of these issues. The current study reports acoustic, speech intelligibility and speaking rate measures collected longitudinally over the course of 12-15 months from five speakers diagnosed with ALS and dysarthria. Acoustic measures obtained for words embedded in sentences included vowel durations, mid-vowel F1 and F2 frequencies, acoustic vowel spaces, and F2 slopes. Sentence intelligibility and speaking rate measures were also obtained. Changes in these measures with disease progression will be reported. Acoustic measures will be related to measures of speech intelligibility and speaking rate. Findings will be discussed from the point of view of articulatory subsystem involvement and pathophysiology of disease.