

## How well does DDK task performance predict fluent speech articulation?

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The oral diadokochinesia (DDK) task is an established tool for assessing speech motor control that has been used across a range of conditions. The predominant outcome measure reported after the patient have performed the task is the maximum syllable rate achieved by the patient. More recent reports have also highlighted stability in pace of the sequence as quantifications that may be indicative of speech impairment. While the DDK task affords quick and easy administration, concerns have been raised regarding the strength of association between DDK task performance and patients's articulation in fluent speech. It may not be assumed that a reduced DDK rate or rate stability will cause fluent speech also to be perceived as slowed or dysrhythmic. And, patients may well improve their syllable rate at the expense of articulatory quality, which is currently not easily captured in an objective outcome measure.

We report here on an effort to assess to what degree information from an expanded quantification of DDK sequences may be used identify patients with dysarthria and to model clinical assessments of fluent speech. Acoustic quantifications of the consonant and consonant-vowel relationship are combined with previously used measures, and applied to manually processed DDK sequences produced by patients with Parkinson's disease and normal control speakers. We observe how well these quantifications may form the basis for accurate identification of patients among normal controls, and predict the outcome of blinded and randomized clinical assessments of patients' production of fluent speech.