

Syllable repetition

Speech feature	Subsystem	Definition	Description
Diadochokinetic rate (DDKR)	Articulation	The DDKR is estimated as the inversion of the median duration between consecutive voice onsets.	Abnormally slow motion rate of articulators.
Diadochokinetic irregularity (DDKI)	Articulation	The DDKI is estimated as the standard deviation of the measured durations between consecutive voice onsets.	Irregular or timing deficits of repetitive movements.

Sustained phonation

Speech feature	Subsystem	Definition	Description
Standard deviation of fundamental frequency (stdF0)	Phonation	The stdF0 is computed as the standard deviation of detected modal F0 in semitones estimated via the median absolute deviation.	Irregular or timing deficits of vocal folds vibration.
Jitter	Phonation	Frequency perturbation.	Harsh, rough and raspy voice.
Harmonics-to-noise ratio (HNR)	Phonation	Amount of noise in voiced speech.	Harsh, rough and raspy voice.

Connected speech (reading or monologue)

Speech feature	Subsystem	Definition	Description
Duration of unvoiced Stops (DUS)	Articulation	Median length of unvoiced stop consonants identified from the bimodal distribution of length of unvoiced stop consonants and unvoiced fricatives using an Expectation Maximization algorithm.	Period of stop consonants is prolonged by friction-like noise of insufficiently closed articulators.
Resonant frequency attenuation (RFA)	Articulation	Resonant frequency attenuation, defined as the differences between the maxima of the second formant region and minima of local valley region called antiformant.	Hypokinesia leads to decrease spectral energy as a result of decayed articulatory movements.
Standard deviation of power (IntSD)	Prosody	Standard deviation of speech intensity contour extracted from voiced segments.	Hypokinesia leads to decreased amplitude of respiratory and thyroarytenoid muscles.
Standard deviation of fundamental frequency (F0SD)	Prosody	Standard deviation of fundamental frequency contour converted to semitone scale	Hypokinesia causes reduced amplitude of vocal cord movements, leading to glottal incompetence.
Net speech rate (NSR)	Prosody	The total number of syllables was divided by the total duration of speech.	Slowness of individual movements of articulators.