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| S2 Table*Instrumentation and data acquisition settings for measurements of speech subsystem functions* |
| Subsystem | Instrument | Signal | Task | Measurements |
| Articulatory | Eagle Digital System, *Motion Analysis Corp.* | Kinematic | “Buy Bobby a puppy.” “Say /apa/ again.”  | Maximum/minimum velocities of lower lip movement relative to the jaw, the composite movement of lower lip and jaw, lip opening, and jaw movement during opening and closing gestures |
|  | Compact flash recorder, Professional quality microphone, *Conutryman E6* | Acoustic | Repeat /ba/ as clear and as fast as possible on one breath (AMR test) | Number, duration, and rate of syllable repetitions |
| Resonatory | Nasometer, *Model 6400, KAYPentax* | Acoustic | “Mama made some lemon jam.” “Buy Bobby a puppy.”  | Median nasalance in the sentences |
|  | BIOPAC system, *BIOPAC System Inc.* | Aerodynamic | /ba/, /pa/, /pi/, /ma/, /mi/, “hamper” | Intraoral pressure and nasal airflow in syllablesRatio of intraoral pressure between oral and nasal consonant pairsRatio of nasal airflow between oral and nasal consonant pairsTime lag between /m/ and /p/ in “hamper” |
| Phonatory | Compact flash recorder, Professional quality microphone, *Conutryman E6*  | Acoustic | “Normal” and “high pitch” phonation of /a/. Sustain soft, normal, and loud /a-a-a/ for 3 seconds.  | Maximum phonation durationMaximum F0JitterShimmerNHRAverage SPL of soft, normal, and loud voiceMaximum SPL |
|  | Phonatory Aerodynamic System, *KAYPentax* | Aerodynamic | Repetition of /pa-pa-pa/ five to seven times on a single breath.  | Average peak air pressureAverage peak airflowAverage laryngeal airway resistance |
| Respiratory | Phonatory Aerodynamic System, *KAYPentax* | Aerodynamic | /pa/, /pi/ | Maximum subglottal pressure during /pa/ and /pi/ |
|  | Compact flash recorder, Professional quality microphone, *Conutryman E6*  | Acoustic | Bamboo passageRead /pi/ seven times.  | Speech duration, total duration, and speech pausing pattern (number of pauses, pause duration, percentage of pauses) in Bamboo passageSpeech duration, pause duration, percentage of pauses in the repetitions of /pi/ |