SLP Annotation

The SLP annotation is from Darley, Aronson & Brown (DAB) (1969). This publication provided: (1) the shared terminology used among clinicians to describe dysarthric speech; (2) clusters of speech descriptors that are associated with specific neurological conditions. It’s commonly referred to as the Mayo Clinic System. 38 dimensions are in the original. 7 were added in 1972 for multiple sclerosis and appear less often in the literature (Darley, Brown & Goldstein, 1972).

It uses a 1-7 integer scale. A rating of 1 corresponds to typical speech. A rating of 7 represents severe deviation from the expected speech signal.

For Phase 1, Parkinson Disease (PD), all participants are rated on the cluster of 12 dimensions associated with PD. When participants exhibit dimensions that are outside of that cluster (e.g. distorted vowels), they are rated on those also.

Blocks 1 and 10 are rated. They are rated on at least the first 5 commands and first 5 sentences. All spontaneous speech for blocks 1 and 10 are rated.

Speech Descriptors from DAB:

|  |  |  |
| --- | --- | --- |
| Label | | Description |
| 1 | Pitch level | Pitch of voice sounds consistently too low or too high for individual’s age and gender. |
| 2 | Pitch breaks | Pitch of voice shows sudden and uncontrolled variation. |
| 3 | Monopitch | Voice is characterized by a monopitch or monotone. Voice lacks normal pitch and inflectional changes. |
| 4 | Voice tremor | Voice shows shakiness or tremulousness. |
| 5 | Monoloudness | Voice shows monotony of loudness. It lacks normal variation in loudness. |
| 6 | Excess loudness variation | Voice shows sudden, uncontrolled alternations in loudness. |
| 7 | Loudness decay | There is a progressive diminution or decay of loudness . |
| 8 | Alternating loudness | There are alternating changes in loudness. |
| 9 | Loudness level (overall) | Voice is insufficiently or excessively loud. |
| 10 | Harsh voice | Voice is harsh, rough, and raspy. |
| 11 | Hoarse (wet) voice | There is a wet, liquid hoarseness. |
| 12 | Breathy voice (continuous) | Voice is continuously breathy, weak and thin. |
| 13 | Breathy voice (transient) | Breathiness is transient, periodic, and intermittent. |
| 14 | Strained-strangled voice | Phonation sounds strained or strangled. Effortful squeezing through glottis. |
| 15 | Voice stoppages | There are sudden stoppages of voiced airstream. |
| 16 | Hypernasality | Voice sounds excessively nasal. Excessive amount of air is resonated by nasal cavities. |
| 17 | Hyponasality | Voice is denasal. |
| 18 | Nasal emission | There is nasal emission of airstream. |
| 19 | Forced inspiration-expiration | Speech is interrupted by sudden, forced inspiration and expiration. |
| 20 | Audible inspiration | There is audible, breathy inspiration. |
| 21 | Grunt at end of expiration | There is a grunt at the end of expiration. |
| 22 | Rate | Rate of speech is abnormally slow or rapid. |
| 23 | Short phrases | Phrases are short. Inspiration may occur more often. Speaker may sound like they have run out of air. |
| 24 | Increased rate in segments | Rate increased progressively within given segments of connected speech. |
| 25 | Increase of rate overall | Rate increases progressively from beginning to end of sample. |
| 26 | Reduced stress | Speech shows reduction of proper stress or emphasis patterns. |
| 27 | Variable rate | Speech alternates from slow to fast. |
| 28 | Prolonged intervals | There are prolongation of interword or intersyllable intervals. |
| 29 | Inappropriate silences | There are inappropriate silent intervals. |
| 30 | Shot rushes of speech | There are short rushes of speech separated by pauses. |
| 31 | Excess and equal stress | There is excess stress on usually unstressed parts of speech. E.g. monosyllabic words and unstressed syllables of polysyllabic words |
| 32 | Imprecise consonants | Consonant sounds lack precision. They show slurring, inadequate sharpness, distortions. |
| 33 | Prolonged phonemes | There are prolongations of phonemes. |
| 34 | Repeated phonemes | There are repetitions of phonemes. |
| 35 | Irregular Articulatory Breakdowns | There are intermittent, nonsystematic breakdowns in accuracy of articulation. |
| 36 | Distorted vowels | Vowels are distorted throughout their total duration. |
| 37 | Intelligibility | This is the rating of overall intelligibility or understandability of speech. |
| 38 | Naturalness[[1]](#footnote-1) | This is the rating of degree to which overall speech calls attention to itself due to unusual characteristics. |
| 39 | Defective articulation | General and consistent imprecision of consonants and vowels. |
| 40 | Impaired emphasis | Inaccurate rate, pitch and loudness variations for emphasis. |
| 41 | Impaired pitch control | Difficulty maintaining appropriate pitch. |
| 42 | Decreased vital capacity | Vital capacity appears reduced. |
| 43 | Increased breathing rate | Increased inhalations during speech. |
| 44 | Sudden articulatory breakdown | Momentary impairment in articulation that resolves. |
| 45 | Inadequate ventilation | Tidal volume insufficient for speech. |

1. The original text uses the outdated term “bizarreness”. “Naturalness” is the modern label. [↑](#footnote-ref-1)