

Introduction:

Diagnosis of speech impairment is usually based on assessment of performance on a range of tasks including sustained phonation, syllable repetition, production of words and sentences and connected speech, the latter often elicited using a standardized reading paragraph. A few different texts have been used for this purpose in Sweden, but no text has ever been purposely constructed to include characteristics selected to enhance the assessment of speech and speech breathing. The purpose of the following study was therefore to develop and evaluate a novel reading passage taking into consideration specific aspects of value for identification and differential diagnosis of speech disorders.

Method:

The construction and evaluation of the new paragraph was completed in several steps. Initially, features expected to enhance the diagnostic process were identified. These included variation of word- and phrase length, inclusion of multisyllabic words and repetitions, representation of all phonemes, a range of clusters and prosodic variation. A neutral theme, well-known vocabulary and reading level were additional factors to consider. A paragraph was constructed and in a first step it was compared to the previously most often used Swedish paragraph. Both paragraphs were read aloud by 34 participants with no known speech or voice disorder. Analysis of the findings resulted in a revised version called The trapeze artist. In a second step, 43 speakers with motor speech disorders, MSD, divided into two levels of severity and 10 matched healthy controls were recorded while reading The trapeze artist. Recordings were analyzed regarding phrase-length, articulation rate, reading errors, pauses and speech breathing and results were compared between the three groups. In a third step, 32 speakers with stuttering, acquired apraxia of speech, hypokinetic dysarthria or cervical spinal cord injury (experiment group) and 11 individuals without affected speech or breathing (control group) were recorded while reading The trapeze artist. The same variables as above were analyzed and results were compared between groups.

Results:

Analysis of the recordings from the first step of the paragraph development showed that the new paragraph challenged articulatory and respiratory capacity more than the previously commonly used passage. In the second step it was shown that performance reading the revised version of the paragraph was significantly different for speakers with moderate-severe MSD compared to other groups for all variables studied. Number of reading errors also differentiated between speakers with different level of severity of MSD. It was shown that The trapeze artist challenged articulation and respiration to a higher degree than the other previously used paragraph. The third step of the analysis confirmed significant differences in performance by the experimental group (this time with different types of MSD) and the control group. Participants with apraxia of speech could also be differentiated from participants with other MSDs based on reading of The trapeze artist.

In conclusion; the newly developed paragraph was shown to better differentiate between speakers with MSD and healthy speakers and could also better differentiate between levels of severity of MDS compared to the previously commonly used paragraph.