

Computerised Severity Scale for Stuttering

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Part I

Attempts have been made to objectively rate severity of stuttering using different procedures.

The present study was conducted to provide an objective measurement of severity of stuttering using a computer.

This study consisted of fifteen stutterers and fifteen nonstutterers matched for age, sex and language background. Each subject read first paragraph of "Rainbow passage". The reading samples were recorded on a 'Philips' deck recorder. The reading samples were used for analysis. The analysis was carried out using a computer to find out the number of stuttering moments, duration of stuttering moments and rate of speech.

The three judges were asked to rate the severity of stuttering and rate of speech for the same samples. Intra and interjudge reliability for these ratings was found out.

Then the correlation between ratings by judges and measurement using computer was found out.

The definition of Wingate (1964) was considered as the criteria to define stuttering.

Conclusions:

- 1) In the severity rating of stuttering the following parameters have been found to be important:
 - a) Number of repetitions
 - b) Number of pauses
 - c) Total number of stuttering moments
 - d) Average duration of repetitions
 - e) Average duration of pauses
 - f) Total average duration of stuttering moments.
- 2) Rate of speech is an important parameter in rating severity of stuttering, which can be easily calculated with the help of computer.
- 3) Computer gives simultaneous audio-visual display of the speech, increasing the accuracy of rating stuttering severity, especially for the measurements of duration of stuttering blocks.

Recommendation For The Future Study

The study may be carried out on a large number of stutterers of different age.

Part II

Acoustic Parameters Of Speech Of Stutters In Pre And Post Therapy Conditions

Many studies have reported that the acoustic parameters of speech of stutterers are different from the nonstutterers. Investigators have also reported that parameters like fundamental frequency, rate of speech are also different for stutterers when compared to nonstutterers.

This part of the study was conducted to find out the acoustic parameters voice onset time, speech initiation time, speech termination time, Fo and rate of speech in stuttering in pre and post therapy conditions and to compare with the nonstutterers.

The study consisted of five stutterers and five nonstutterers matched for age, sex and language background; three of them being Kannada speakers and two English speakers. Each subject read a standard passage, syllables, words and spoke sentences. The reading and speech samples were recorded on a 'Philips' deck recorder. The reading samples were analyzed using the: computer spectrograph to find out the voice onset time; fundamental frequency; rate of speech and total number of stuttering moments. The speech samples were used to find out the speech initiation time and speech termination time. The definition of Wingate (1964) was used to measure the type of stuttering blocks.

Conclusions:

- 1) (a) Nonstutterer's VOT values are smaller as compared to stutterer's pretherapy and posttherapy VOT values.
(b) Stutterer's posttherapy VOT values are smaller as compared to pretherapy VOT values.
- 2 (a) Speech initiation times of nonstutterers are less than that of stutterers in pretherapy and posttherapy conditions.
(b) There is a reduction in posttherapy speech initiation time of stutterers as compared to the pretherapy condition.
- 3) (a) Pretherapy speech termination time values of stutterers are different from nonstutterers, but there is no difference between stutterer's in posttherapy condition and nonstutterers when speech termination time is considered.
(b) Stutterer's posttherapy STT values are different i.e., longer as compared to pretherapy STT values.
- 4) (a) Nonstutterers do not differ from stutterers in pretherapy and posttherapy conditions when rate of speech is considered.
(b) There was no difference in rate of speech of stutterer's in posttherapy condition and pretherapy condition.
- 5) (a) Nonstutterers and stutterers (pretherapy and posttherapy condition) show no difference in fundamental frequency.
(b) Stutterer's posttherapy Fo does not vary as compared to pretherapy Fo.
- 6) (a) Total number of stuttering moments are not seen in nonstutterers as compared to stutterer's pretherapy condition. But stutterers behave as normals in posttherapy condition, as they show negligible number of stuttering moments.
(b) There is a great reduction in total number of stuttering moments in posttherapy condition than that of the pretherapy condition.