

# Effect of Binaural Masking Noise on Stuttering —A Spectrographic Analysis \*

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Several reports have been made that binaural masking noise has effect on frequency of stuttering and this effect has been attributed to variations in vocal intensity, fundamental frequency of voice, rate of speech and vowel duration.

Bryton and Conture (1978) have analyzed the speech of stutterers under binaural masking and rhythmic speech stimulation using spectrograph. They have attributed the decrease in stuttering under these two conditions to increase in vowel duration. The present study was conducted to find out the effects of binaural masking noise on rate of speech, frequency of stuttering, vocal intensity level, fundamental frequency of voice, voice onset time and vowel duration.

The study consisted of four non-stutterers and four stutterers, matched for age, sex, reading proficiency and intelligence. All the subjects read two passages—one in the absence of binaural masking noise and the other in the presence of binaural masking noise of 90 dB HTL. The readings were recorded using a professional tape recorder. The recordings were analyzed using spectrograph, audio-frequency analyzer, and

digipitch to obtain vowel duration, voice onset time, vocal intensity level and fundamental frequency of voice. The rate of speech and number of blocks were also determined.

The results have been discussed.

## Conclusions

- (1) There is a significant decrease in number of stuttering blocks under binaural masking noise condition in case of stutterers.
- (2) Normals showed no stuttering blocks under binaural masking condition.
- (3) No significant difference in syllable output per second was found in the absence and in the presence of binaural masking noise in both the groups.
- (4) Both stutterers and non-stutterers showed an increase in vocal intensity level under binaural masking noise. However, stutterers showed greater increase in vocal intensity than non-stutterers.
- (5) Subjects of both groups showed an increase in fundamental frequency of voice under binaural masking noise. Again stutterers showed greater

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increase in fundamental frequency of voice compared to non-stutterers.

- (6) No significant difference in voice onset time (VOT) was observed in stutterers and non-stutterers—both in the absence and in the presence of binaural masking noise.
- (7) An increase in vowel duration was found in both stutterers and non-stutterers under binaural masking.

#### **Recommendations for Future Study**

- (1) The study may be tried on large population.
- (2) Different kinds of masking noises *i.e.*, narrow band, saw-tooth, may be

tried with stutterers and normals, to see their effects on parameters that have been studied in this experiment.

- (3) Effect of white noise, at different intensities, on speech and reading may be studied.
- (4) Different sex and age groups of stutterers may be subjected to masking noise to note its effects.
- (5) Effect of masking noise on VOT in Kannada and other languages may be compared.
- (6) Spontaneous speech and reading under binaural masking noise may be compared using a spectrograph.