

# Mean Air Flow Rate in Dysphonics\*

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"Voice production involves a complex and precise control by the central nervous system of a series of events in the peripheral phonatory organs." The aerodynamic factors play an important role in phonation. The measurement of air flow has gained importance in recent years in screening, assessing and treating voice disorders.

The present study was conducted to find out the possibilities of :

- (1) Measurement of vital capacity values based on height and weight of normal subjects.
- (2) Measurement of mean air flow rate value in dysphonics based on vital capacity and maximum phonation duration.

The experiment was carried out in two parts. In part one, ten normal males and ten normal females in the age range of 30-55 years served as subjects. Their vital capacity, maximum phonation duration, mean air flow rate, height and weight were determined using expirograph, stop watch, weighing machine and measuring tape. Then using the nomogram vital capacity was predicted for each subject. Then

phonation quotient and mean air flow rate were calculated using the formulae :

$$PQ = \frac{VC}{MPD}$$

$$MAF = 77 + 0.236 PQ$$

Then the estimated and obtained values of VC and MAF were compared.

In part two of the experiment, 22 dysphonic males and 13 dysphonic females served as subjects. Experimental set-up, equipment and procedure used were same as in part one of the experiment for measurement of vital capacity, mean air flow rate, maximum phonation duration, height and weight of subjects. Then vital capacity and mean air flow rate were estimated as described in part one of the experiment. Estimated and obtained values of vital capacity and mean air flow rate were compared.

## Conclusions

The following conclusions have been drawn based on the results obtained and statistical analysis :

- (1) There was a significant difference in estimated and obtained vital capacity, but they were highly correlated in normal males and females. Estimated values of VC were greater

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- than obtained values of VC. This means that the nomograms devised by Krishnamurthy (1986) could be used to estimate VC but with precaution. The difference between VC and EVC never exceeded 300 cc in the normal subjects studied.
- (2) There was no significant difference in estimated and obtained mean air flow rate in normal subjects.
  - (3) The PQ values were highly correlated with mean air flow rates, with PQ values being greater than MAF values.
  - (4) There was a significant difference in obtained and estimated vital capacity in dysphonic subjects, but VC and EVC were highly correlated.
  - (5) There was no significant difference in obtained and estimated mean air flow rates in dysphonics. This showed that it was possible to estimate the MAF reliably and such EMAF was valid.
  - (6) The PQ values were highly correlated with MAF values, with PQ values being greater than MAF values.