

## **A Comparison of Two Different Instruments for Measuring Peak Expiratory Flow: Asma PLAN Peak Flow Meter Versus Micro Quark Electronic Spirometer**

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Measurement of Peak Expiratory Flow (PEF) is widely used in diagnosis and management of asthma and in identifying the air flow limitation in epidemiological and occupational studies. Asma PLAN Peak Flow Meter (PFM) is easy to be used at home. Micro Quark Electronic Spirometer (MES) measures PEF along with other lung function tests in laboratory setting. This study was carried out to assess the agreement between PEF values obtained by these two methods. Ninety six non smoking healthy volunteers (65 males, 31 females) among the students at Jaffna medical faculty were included in this study. Written consent was obtained from each participant. Three readings were obtained from each subject for both methods and the highest value was taken for analysis. The differences between both methods were compared by paired T test. Agreement between both methods was checked by Bland Altman model. The mean PEF was  $428.49 \pm 90.053$ ,  $414.63 \pm 119.51$  l/min by PFM and MES respectively. The mean difference was  $13.85 \pm 70.92$  l/min ( $P=0.059$ ). There was a strong positive correlation of 0.807 between both methods. Ninety five % confidence limit for the differences between both methods ( $d \pm 1.96s$ ) suggested unacceptable wide range of -125.16 l/min to 152.85 l/min. Differences in the working principles of the instruments and slight difference in the instruction to the subjects and procedures, specified by the manufacturers may have contributed for the lack of agreement between both methods. Both methods cannot be used interchangeably at home and in clinics. Same instrument and same procedure must be used in continuous monitoring of PEF.

**Keywords:** Peak Expiratory Flow, Lung function tests

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