

## EFFECT OF POSTURE ON PEAK EXPIRATORY FLOWRATE

HARSHITHA S.H & NEELAMBIKAI N

Coimbatore Medical College, Coimbatore, Tamil Nadu, India

### ABSTRACT

*Peak expiratory flow rate is one of the convenient lung function test. It is used for monitoring functional changes in asthma. Lung function tests have to be done in both bedridden patients and those who cannot lie down. In field situations they have to be measured in standing position. The lung function parameters like FVC, FEV1 are affected by posture. This study was done to detect the effect of posture on peak expiratory flow rate. Aims & Objectives: To study the effect of posture on peak expiratory flow rate using Wright's peak flow meter. Materials and Methods: 30 young females in the age group of 17-19 years were selected. Those with history of nasal block, asthma, pneumonia etc., were excluded from the study. PEFR was measured by asking the subject to take a deep inspiration and blow out as forcefully as they can into Wright's peak flow meter. This was done in each of standing, sitting and supine positions for three times and the best value was taken as the result. Results: The results were analysed using paired t test. 'p' value between sitting and standing position is 0.4752, between sitting and supine is 0.8080, between standing and supine is 0.1033. Discussion: 'p' value showed no statistically significant difference of PEFR in different postures. Conclusion: Though PEFR is affected by various factors like age, sex, body mass index etc., posture has no significant effect on it.*

**KEYWORDS:** Peak Expiratory Flow Rate, Posture, Normal Subjects

**Received:** Mar 29, 2016; **Accepted:** Apr 18, 2016; **Published:** Apr 20, 2016; **Paper Id.:** TJPRC:IJPPJUN20163

### INTRODUCTION

Peak expiratory flow rate is one of the convenient lung function test. It is now used and standardized in our country to widen its use. It is the maximum rate of airflow which is sustained for a period of 10 ms during a forced expiration after a maximal inspiration. It is used for monitoring functional changes in asthma. Lung function tests have to be done in both bedridden patients and those who cannot lie down. In field situations they have to be measured in standing position. The lung function parameters like FVC, FEV1 are affected by posture. This study was done to detect the effect of posture on peak expiratory flow rate.

### Aims and Objectives

To study the effect of posture on peak expiratory flow rate using Wright's peak flow meter.

### MATERIALS AND METHODS

**Study Place:** Department of Physiology, Coimbatore medical college

**Materials Used:** Wright's Peak flow meter.

30 young females in the age group of 17-19 years were selected as subjects. All have been demonstrated how to use the peak flow meter for measuring PEFR. Those with history of nasal block, asthma, pneumonia etc., were excluded from the study. PEFR was measured by asking the subject to take a deep inspiration and blow out

as forcefully as they can into Wright's peak flow meter. This was done in each of standing, sitting and supine positions for three times and the best value was taken as the result. The mean and standard error of PEFR in standing, sitting and supine positions were calculated. Student's t test was performed between the positions to see any significant difference of PEFR in different positions.

## RESULTS

PEFR was expressed in litres/min. Mean  $\pm$  SE of PEFR were  $347.67 \pm 6.76$ ,  $346 \pm 6.26$ ,  $347 \pm 6.95$  in standing, sitting and supine positions respectively. The results were analysed using paired t test. 'p' value between sitting and standing position is 0.4752, between sitting and supine is 0.8080, between standing and supine is 0.1033.

### Mean PEFR in Different Positions

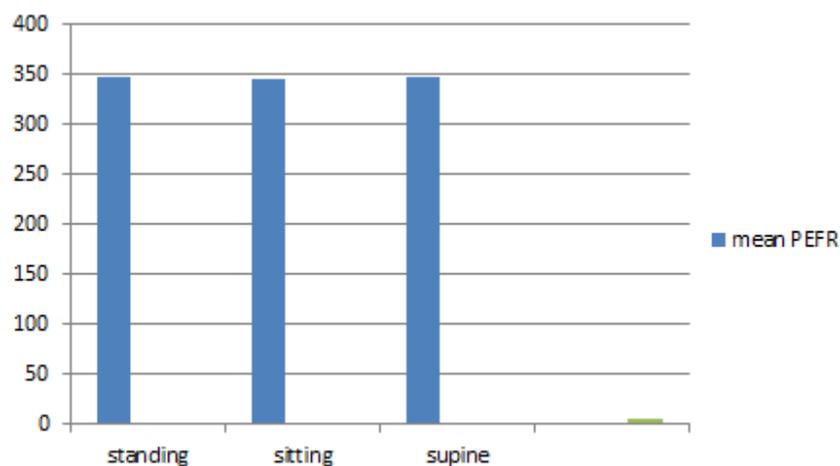


Figure 1

## DISCUSSIONS

On analysing the results it was found that 'p' value showed no statistically significant difference of PEFR in different postures. PEFR has been measured by different observers but the position of the subjects have not been mentioned<sup>1,2,4,5,6</sup>. Various studies have shown the effect of chest expansion, surface area and height of the subject influencing PEFR.

## CONCLUSIONS

Though PEFR is affected by various factors like age, sex, body mass index, body surface area etc., there is no significant effect of posture. Hence it can be concluded that PEFR can be measured in any position of the patient. This would be useful to bronchial asthma patients in that they can routinely monitor PEFR in any comfortable position at their homes for adjustment in drugs and dosage.

## ACKNOWLEDGEMENT

I owe sincere thanks to my Professor for guiding me in this study. I am also thankful to my colleagues for helping me to complete this study.

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