

Comparison of Pulmonary Functions in Young Adults with and without Forward Head Posture

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ABSTRACT

Introduction: Forward Head Posture is a common postural deviation associated with adverse effects on many body systems. It is prevalent in young adults with sedentary jobs. In Forward Head Posture, the excessive anterior positioning of the head creates a cascade of malalignments in the cervical and thoracic spine, which affect the lung volumes. Spirometry is a method of measuring pulmonary functions by assessing the FEV1/FVC ratios. Single Breath Count (SBC) measures how far an individual can count in a normal voice after maximal effort inhalation. It correlates well with FEV1, FVC and SVC, thus it is an estimate of lung volumes and pulmonary function. As thoracic mobility is compromised in Forward Head Posture, Chest expansion is taken as an outcome for lung function. Chest expansion is the measure of rib cage mobility, assessed at the 2nd, 4th intercostal spaces and the Xiphoid process.

Methods: This was an observational comparative study consisting of two groups based on the craniovertebral angle (n= 22 each) categorized as with and without Forward Head Posture and their SBC and Chest expansion was assessed. SBC and Chest expansion values at 4th ICS and Xiphoid level were analyzed by the Mann Whitney test and Chest expansion at 2nd ICS was analyzed by Unpaired t test. As a post hoc analysis, BMI was correlated with SBC and Chest expansion by Spearman's test.

Results: SBC showed a statistically significant intergroup difference ($p < 0.005$). Chest expansion values at 4th ICS and Xiphoid level showed significant intergroup difference. However, there was no statistically significant difference between Chest expansion values at 2nd ICS. Additionally, the study did not show a strong correlation of BMI with SBC and Chest expansion.

Conclusion: There is a significant difference in pulmonary functions in young adults with and without forward head posture.

Keywords: Pulmonary function, young adults, forward head posture, chest expansion

