

## OP 10

### **Effect of body mass index and posture on respiratory muscle strength and peak expiratory flow rate among young adult undergraduate students at University of Peradeniya**

Sarjana MSF<sup>1\*</sup>, Shiham MSA<sup>1</sup>, Sirishanthi HGBT<sup>1</sup>, Wellawatta WHMS<sup>1</sup>, Infas KM<sup>1</sup>, Bavithra N<sup>1</sup>, Dahanayake DWP<sup>2</sup>, Kariyawasam AP<sup>2</sup>

<sup>1</sup>Department of Physiotherapy, Faculty of Allied Health Sciences, University of Peradeniya, Sri Lanka, <sup>2</sup>Department of Physiology, Faculty of Medicine, University of Peradeniya, Sri Lanka

**Background:** Weakness of the respiratory muscle strength leads to impaired respiratory function with or without respiratory pathology. It affects the quality of life by activity limitation and participatory restrictions of individuals in day to day life.

**Objective:** To determine the effect of Body Mass Index (BMI) and different body positions on respiratory muscle strength and Peak Expiratory Flow Rate (PEFR) of young adults in University of Peradeniya, Sri Lanka.

**Methods and Materials:** A cross sectional study was done in healthy young adults aged 22-26 years (28 males and 38 females). Height, weight was measured using standard techniques and subjects were categorized according to BMI. Respiratory muscle strength was evaluated by Maximum Inspiratory Pressure (MIP) and Maximum Expiratory Pressure (MEP). PEFR was measured using peak flow meter. All were measured in sitting, standing, semi fowler and supine positions in all BMI categories.

**Results:** Higher and lower mean inspiratory muscle strength was observed in over weight (70.3±42.8) and underweight (38.1±16.42) categories, respectively. Obese category (81.4±31.5) showed higher mean expiratory muscle strength while underweight (52.9±24.0) category showed lower expiratory muscle strength compared to the other BMI categories. Comparing all four positions with BMI categories, only sitting position showed a significant (p=0.026) relationship with MIP. MIP showed a significant positive correlation (p<0.001) with height and weight in all four body positions and no significant relationship with BMI (p>0.05). There was a positive correlation in MEP with height and weight in all four positions (p<0.001) and no significant relationship with BMI (p>0.05). There was no any significant relationship in changes of PEFR with body positions (p=0.93). PEFR higher in obese category and lower in underweight category although not significant (p>0.05).

**Conclusion** There was no significant effect of changing body positions on respiratory muscle strength and PEFR. Respiratory muscle strength and PEFR showed no significant relationship with BMI except MIP in sitting position