



## Altered respiratory physiology in obesity

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**Introduction:** Obesity plays a key role in the development of obstructive sleep apnea and obesity hypoventilation syndrome and Asthma are more common and often harder to treat in the obese population, Obesity affects various resting respiratory physiologic parameters, such as compliance, neuromuscular strength, work of breathing, lung volumes, respiratory resistance, responsiveness to methacholine spirometric measures all changes in respiratory parameters to culminate lung diseases

**Method:** A search in the medical literature from 2000 and onwards was carried out through Medline and Embase for publications on obesity, in combination with Medical Subject Heading (MeSHs) words related to respiratory physiology were done.

**Result:** all studies show Obese patients tend to have Total respiratory system compliance reduction in vital capacity (VC) and forced expiratory volume in 1second (FEV1) higher respiratory rates and lower tidal volumes. Lung volumes tend to be decreased, especially expiratory reserve volume (ERV). Marked reductions in expiratory reserve volume may lead to abnormalities in ventilation mismatch with closure of airways in the dependent zones of the lung and ventilation perfusion mismatch Obesity is characterized by a stiffening of the total respiratory system which is due to a combination of effects on lung and chest wall compliance Respiratory resistance is increased in the obese indicating that airway caliber is reduced throughout the tidal breathing cycle .Tidal volumes are often reduced in severe obesity, and breathing follows a rapid, shallow pattern Mild hypoxemia and increased alveolar-arterial oxygen difference that may be related to obesity-hypoventilation syndrome are frequently reported there is association between obesity and airway hyperresponsiveness, a characteristic feature of the pathophysiology of asthma. Obese patients often have a thicker neck, smaller upper airway caliber, and poor neck mobility difficulties in intubation Gastroesophageal reflux disease that predispose to regurgitation and aspiration pneumonia .Obesity plays a key role in the pathogenesis of obesity hypoventilation syndrome (OHS). A BMI of more than 30 kg/m<sup>2</sup> together with daytime hypercapnia is required for the diagnosis of OHS. Many studies have focused on the effects of central adipose tissue, that to culminate metabolic and endocrine functions influence the central control of breathing. Chronic daytime hypoxemia and hypercapnia in OHS patients is associated with a high risk of developing pulmonary hypertension, right-sided heart failure, and cor pulmonale and coronary diseases. Mortality and morbidity from OHS have been found to be much higher



**Conclusion:** Obesity presents with various respiratory problems and is associated with many medical comorbidities. treatment and prevention of obesity to reduce and minimize many medical and respiratory complications improvements in ERV Respiratory muscle endurance also improves and decreased dyspnea and mortality and morbidity.

**Key words:** obesity, OHS, hyper responsiveness, spirometric measures