Pulmonary and chest wall function in obese adults.

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Obesity is frequently associated with breathing disorders. To investigate if and how the highest levels of obesity impact respiratory function, 17 subjects with obesity (median age: 49 years; BMI: 39.7 kg/ m^2, 8 females) and 10 normal-weighted subjects (49 years; 23.9 kg/m^2, 5 females) were studied.

The abdominal volume occupied 41% in the obese group, being higher (p < 0.001) than the normal-weighted group (31%), indicating accumulation of abdominal fat. Restrictive lung defect was present in 17% of subjects with obesity. At rest in the supine position, subjects with obesity breathed with higher minute ventilation (11.9 L/min) and lower ribcage contribution (5.7%) than normal weighted subjects (7.5 L/min, p = 0.001 and 31.1%, p = 0.003, respectively), thus indicating thoracic restriction. Otherwise healthy obesity might not be characterized by a systematic restrictive lung pattern.

Despite this, another sign of restriction could be poor thoracic expansion at rest in the supine position, resulting in increased ventilation. Class 3 obesity made respiratory rate further increased. Opto-electronic plethysmography and its thoraco-abdominal analysis of awake breathing add viable and interesting information in subjects with obesity that were complementary to pulmonary function tests. In addition, OEP is able to localize the restrictive effect of obesity.