Title: Do obese patients lose weight with pulmonary rehabilitation?

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Body: Background Obesity is abnormal fat accumulation that may impair health, defined as a BMI ≥ 30. Reduction in physical activity and sedentary lifestyles are now recognised as a major cause. Recent data suggest that obesity does not affect the response to pulmonary rehabilitation (PR) (Greening 2012). However it is not known whether PR can help with weight loss in obese patients. Methods 234 patients (BMI ≥ 30) who completed an 8-week outpatient PR programme were recruited. All were provided with dietary advice leaflets and attended an hour lecture with a dietician. Weight, MRC, Chronic Respiratory Disease Questionnaire (CRQ), incremental shuttle walk (ISW) and body composition (Bodystat 1500) were measured pre and post PR. Fat free mass was calculated (Steiner 2002). Paired t-tests or Wilcoxon Signed rank tests were used to compare outcomes pre and post PR. Results Baseline characteristics mean (standard deviation) or median (25th, 75th percentiles); Age 68 years (62,75), FEV1 % pred 58 (22), MRC 4 (3,5), BMI 35.5 (5.5). Disease classifications (n): COPD (145), interstitial lung disease (23), asthma (28), obesity hypoventilation (14), bronchiectasis (10), extrathoracic restriction (9) and thoracic surgery for lung cancer (2). There was a significant change in all standard PR outcome measures (MRC, CRQ and ISW, all p<0.0001). The mean change in weight and BMI was -0.7kg and -0.3 kg/m² respectively, which was statistically significant (p=0.01 and p<0.01). The weight loss was principally due to loss in fat mass. Conclusion Obese patients undergoing supervised exercise training as part of a PR lose weight which can be attributed to loss of fat mass. However, it is debatable whether these changes are clinically significant.