

Publication

Body mass index and weight change are associated with adult lung function trajectories: the prospective ECRHS study

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Previous studies have reported an association between weight increase and excess lung function decline in young adults followed for short periods. We aimed to estimate lung function trajectories during adulthood from 20-year weight change profiles using data from the population-based European Community Respiratory Health Survey (ECRHS).; We included 3673 participants recruited at age 20-44 years with repeated measurements of weight and lung function (forced vital capacity (FVC), forced expiratory volume in 1 s (FEV₁)) in three study waves (1991-93, 1999-2003, 2010-14) until they were 39-67 years of age. We classified subjects into weight change profiles according to baseline body mass index (BMI) categories and weight change over 20 years. We estimated trajectories of lung function over time as a function of weight change profiles using population-averaged generalised estimating equations.; In individuals with normal BMI, overweight and obesity at baseline, moderate (0.25-1 kg/year) and high weight gain (>1 kg/year) during follow-up were associated with accelerated FVC and FEV₁ declines. Compared with participants with baseline normal BMI and stable weight (≤0.25 kg/year), obese individuals with high weight gain during follow-up had -1011 mL (95% CI -1.259 to -763) lower estimated FVC at 65 years despite similar estimated FVC levels at 25 years. Obese individuals at baseline who lost weight (<-0.25 kg/year) exhibited an attenuation of FVC and FEV₁ declines. We found no association between weight change profiles and FEV₁/FVC decline.; Moderate and high weight gain over 20 years was associated with accelerated lung function decline, while weight loss was related to its attenuation. Control of weight gain is important for maintaining good lung function in adult life.

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