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Title: Ventilatory function and markers of metabolic disorders in young adults

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Body: Background Metabolic disorders are related to poor lung health in adults but there is limited evidence of this effect in young adults. Early identification of these markers might contribute to improve lung function and to prevent COPD later in life. In this study we investigated the relationship between measures of ventilatory function and markers of metabolic disorders in young adults. Methods A cross-sectional study was performed in 1000 subjects aged 22-28 years old from a semi rural area in Chile. Forced vital capacity (FVC) and the ratio FEV_1/FVC were the outcomes. Serum levels of fasting insulin, high-density lipoprotein, triglycerides and plasma glucose were also measured. Insulin resistance status (Homeostatic Model Assessment (HOMA-IR)) and metabolic syndrome (MS) were calculated. Results 970 participants had valid lung function data and complete information on exposures. The mean value of HOMA-IR was 2.59 in males and 2.48 in females (reference cut off point 2.53). 12% of males and 11% of females had MS (defined according the ATP III guidelines). After adjusting for potential confounders, FVC (L) was statistically negatively related to high HOMA-IR (difference of means -0.11 (95% Confidence Interval [CI] -0.17 to -0.05, P value <0.0001). FVC was also statistically negatively associated with MS (difference of means -0.18 (95% CI -0.27 to -0.09, P value <0.001). No association was found between FEV_1/FVC and these markers. Conclusion Presence of metabolic disorders had a deleterious effect on ventilatory function in the young adults studied.