



Change in body mass index and expiratory flow in World Trade Center workers

Amaal Alruwaily, Akshay Sood, Rafael E. de la Hoz, Xiaoyu Liu, John Doucette, Yunho Jeon, Juan Celedón

European Respiratory Journal 2020 56: 3848; DOI: 10.1183/13993003.congress-2020.3848

[Article](#)[Info & Metrics](#)

Abstract

Introduction: Although overweight or obesity have been linked to reduced lung function, no study has estimated the effects of lung function on weight in adults.

Aim: We investigated the relation between expiratory flow and body size, and vice versa, in a cohort of adults.

Methods: Prospective study in 1,329 former World Trade Center (WTC) workers who were included in the WTC Chest Imaging Archive and had a minimum of 2 spirometries between 2002 and 2018 (mean [SD] follow up=7.2 [3.9] years). We used mixed linear models to test for association between change in first-second forced expiratory volume (Δ FEV1) or forced vital capacity (Δ FVC) and change in body mass index (Δ BMI) between sequential visits, and vice versa. All models included sex, race, educational level, age at each visit, smoking status, arrival at the WTC site within 48 hours, baseline value for the predictor of interest (lung function measure or change in body mass index), and intervals between test dates (accounting for unequal intervals).

Results: In multivariable analyses, a 200 ml loss in FEV1 or FVC was associated with 0.29 kg/m² (95% CI=0.26, 0.33) and 0.22 kg/m² (95% CI=0.20, 0.22) increment in BMI, respectively. On the other hand, a 0.2 kg/m² gain in BMI between visits was associated with losses of 7 ml (95% CI= -6 to -8 ml) and 9 ml (95% CI= -8 to -1) ml in FEV1 and FVC, respectively.

Conclusion: Change in BMI and change in FEV1 or FVC were inversely associated with each other, and this association was bidirectional. Further work is needed to identify the mechanisms underlying these associations.

Adults Occupation

Footnotes

Cite this article as: European Respiratory Journal 2020; 56: Suppl. 64, 3848.

This abstract was presented at the 2020 ERS International Congress, in session "Respiratory viruses in the "pre COVID-19" era".

This is an ERS International Congress abstract. No full-text version is available. Further material to accompany this abstract may be available at www.ers-education.org (ERS member access only).

Copyright ©the authors 2020

We recommend

Quantitative CT adiposity metrics as predictors of reduced expiratory flow in WTC workers and volunteers
Rafael E. de la Hoz et al., European Respiratory Journal

Early childhood growth patterns and lung function and asthma at 10 years
Maribel Casas Sanahuja et al., European Respiratory Journal, 2018

Association between birth weight and lung function in middle age
Melvin Tandra et al., European Respiratory Journal, 2020

Obstructive sleep apnea and associations with lung function
B Delshad et al., European Respiratory Journal, 2022

Influence of the body mass index on the survival of COPD patients
Zichen Ji et al., European Respiratory Journal, 2019

Tepotinib Treatment in Patients With MET Exon 14–Skipping Non–Small Cell Lung Cancer: Long-term Follow-up of the VISION Phase 2 Nonrandomized Clinical Trial
Julien Mazieres et al., JAMA Oncology, 2023

Metabolic surgery in China: present and future
Yinfang Tu et al., Journal of Molecular Cell Biology, 2021

Lipidomics reveals association of circulating lipids with body mass index and outcomes in IgA nephropathy patients
Yueyi Deng et al., Journal of Molecular Cell Biology, 2021

Metabolic surgery in China: present and future
Yinfang Tu et al., Journal of Molecular Cell Biology, 2021

Lipidomics reveals association of circulating lipids with body mass index and outcomes in IgA nephropathy patients
Yueyi Deng et al., Journal of Molecular Cell Biology, 2021

[^ Back to top](#)

Vol 56 Issue suppl 64 Table of Contents

[Table of Contents](#)

[Index by author](#)

 [Email](#)

 [Citation Tools](#)

 [Request Permissions](#)

 [Share](#)

Jump To

 [Article](#)

 [Info & Metrics](#)

[Tweet](#)

More in this TOC Section

Related Articles

No related articles found.

[Google Scholar](#)

Navigate

[Home](#)

[Current issue](#)

[Archive](#)

About the ERJ

[Journal information](#)

[Editorial board](#)

[Press](#)

[Permissions and reprints](#)

[Advertising](#)

The European Respiratory Society