

Publication**Improved air quality and attenuated lung function decline : modification by obesity in the SAPALDIA cohort****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 2168759**Author(s)** Schikowski, Tamara; Schaffner, Emmanuel; Meier, Flurina; Phuleria, Harish C.; Vierkötter, Andrea; Schindler, Christian; Kriemler, Susi; Zemp, Elisabeth; Krämer, Ursula; Bridevaux, Pierre-Olivier; Rochat, Thierry; Schwartz, Joel; Künzli, Nino; Probst-Hensch, Nicole**Author(s) at UniBasel** [Schikowski, Tamara](#) ; [Schaffner, Emmanuel](#) ; [Phuleria, Harish Chandra](#) ; [Schindler, Christian](#) ; [Zemp Stutz, Elisabeth](#) ; [Künzli, Nino](#) ; [Probst Hensch, Nicole](#) ;**Year** 2013**Title** Improved air quality and attenuated lung function decline : modification by obesity in the SAPALDIA cohort**Journal** Environmental Health Perspectives**Volume** 121**Number** 9**Pages / Article-Number** 1034-9

Background: Air pollution and obesity are hypothesized to contribute to accelerated decline in lung function with age through their inflammatory properties. Objective: We investigated whether the previously reported association between improved air quality and lung health in the population-based SAPALDIA cohort is modified by obesity. Methods: We used adjusted mixed-model analyses to estimate the association of average body mass index (BMI) and changes in particulate matter with aerodynamic diameter $\leq 10 \mu\text{m}$ (PM₁₀; ΔPM_{10}) with lung function decline over a 10-year follow-up period. Results: Lung function data and complete information were available for 4,664 participants. Age-related declines in lung function among participants with high average BMI were more rapid for FVC (forced vital capacity), but slower for FEV₁/FVC (forced expiratory volume in 1 sec/FVC) and FEF_{25–75} (forced expiratory flow at 25–75%) than declines among those with low or normal average BMI. Improved air quality was associated with attenuated reductions in FEV₁/FVC, FEF_{25–75}, and FEF_{25–75}/FVC over time among low- and normal-BMI participants, but not overweight or obese participants. The attenuation was most pronounced for $\Delta\text{FEF}_{25–75}/\text{FVC}$ (30% and 22% attenuation in association with a 10- $\mu\text{g}/\text{m}^3$ decrease in PM₁₀ among low- and normal-weight participants, respectively.) Conclusion: Our results point to the importance of considering health effects of air pollution exposure and obesity in parallel. Further research must address the mechanisms underlying the observed interaction.

Publisher National Institute of Environmental Health Sciences**ISSN/ISBN** 0091-6765 ; 1552-9924**edoc-URL** <http://edoc.unibas.ch/dok/A6174416>**Full Text on edoc** Available;**Digital Object Identifier DOI** 10.1289/ehp.1206145**PubMed ID** <http://www.ncbi.nlm.nih.gov/pubmed/23820868>**ISI-Number** WOS:000325149600017**Document type (ISI)** Journal Article