

**Publication****Residential greenspace and lung function decline over 20 years in a prospective cohort: the ECRHS study****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 4694338**Author(s)** Markevych, I.; Zhao, T.; Fuertes, E.; Marcon, A.; Dadvand, P.; Vienneau, D.; Garcia Aymerich, J.; Nowak, D.; de Hoogh, K.; Jarvis, D.; Abramson, M. J.; Accordini, S.; Amaral, A. F.; Bentouhami, H.; Jacobsen Bertelsen, R.; Boudier, A.; Bono, R.; Bowatte, G.; Casas, L.; Dharmage, S. C.; Forsberg, B.; Gislason, T.; Gnesi, M.; Holm, M.; Jacquemin, B.; Janson, C.; Jogi, R.; Johannessen, A.; Keidel, D.; Leynaert, B.; Maldonado Perez, J. A.; Marchetti, P.; Migliore, E.; Martínez-Moratalla, J.; Orru, H.; Pin, I.; Potts, J.; Probst-Hensch, N.; Ranzi, A.; Sánchez-Ramos, J. L.; Siroux, V.; Soussan, D.; Sunyer, J.; Urrutia Landa, I.; Villani, S.; Heinrich, J.**Author(s) at UniBasel** [Vienneau, Danielle](#) ; [de Hoogh, Kees](#) ; [Keidel, Dirk](#) ; [Probst-Hensch, Nicole](#) ;  
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**BACKGROUND:** The few studies that have examined associations between greenspace and lung function in adulthood have yielded conflicting results and none have examined whether the rate of lung function decline is affected. **OBJECTIVE:** We explored the association between residential greenspace and change in lung function over 20 years in 5559 adults from 22 centers in 11 countries participating in the population-based, international European Community Respiratory Health Survey. **METHODS:** Forced expiratory volume in 1 s (FEV(1)) and forced vital capacity (FVC) were measured by spirometry when participants were approximately 35 (1990-1994), 44 (1999-2003), and 55 (2010-2014) years old. Greenness was assessed as the mean Normalized Difference Vegetation Index (NDVI) in 500 m, 300 m, and 100 m circular buffers around the residential addresses at the time of lung function measurement. Green spaces were defined as the presence of agricultural, natural, or urban green spaces in a circular 300 m buffer. Associations of these greenspace parameters with the rate of lung function change were assessed using adjusted linear mixed effects regression models with random intercepts for subjects nested within centers. Sensitivity analyses considered air pollution exposures. **RESULTS:** A 0.2-increase (average interquartile range) in NDVI in the 500 m buffer was consistently associated with a faster decline in FVC (-1.25 mL/year [95% confidence interval: -2.18 to -0.33]). These associations were especially pronounced in females and those living in areas with low PM(10) levels. We found no consistent associations with FEV(1) and the FEV(1)/FVC ratio. Residing near forests or urban green spaces was associated with a faster decline in FEV(1), while agricultural land and forests were related to a greater decline in FVC. **CONCLUSIONS:** More residential greenspace was not associated with better lung function in middle-aged European adults. Instead, we observed slight but consistent declines in lung function parameters. The potentially detrimental association requires verification in future studies.

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