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ABSTRACT E-BOOK

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ABSTRACT E-BOOK

P-199

Built environment » Green space

Exposure to green and blue areas and children's lung function growth: results from the RESPOZE study

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BACKGROUND AND AIM: Although there is evidence on the effects of air pollution on children's respiratory health, few studies have reported results on exposure to green and blue spaces. We aimed to evaluate the association between indicators of green and blue areas and lung function growth in 10-11-year old children.

METHODS: We used data from the "Respiratory Effects of Ozone Exposure in children (RESPOZE)" panel study of 186 students residing in the two largest cities in Greece (Athens and Thessaloniki). Data was collected through questionnaires, weekly spirometry measurements and time-activity diaries, while home addresses were geocoded. Residential surrounding urban green spaces in different buffers, blue spaces in a buffer of 1000 meters and satellite-derived Normalised Difference Vegetation Index (NDVI) averaged over a buffer of 150 meters were used as exposure indices. The associations between lung function growth and exposure metrics in quartiles were assessed by applying multiple regression models with adjustment for confounders and clustering at neighborhood level.

RESULTS: Lung function growth was positively associated with green space surface around 500 meters of children's homes in single exposure models. A 0.050% [95% CI: 0.003, 0.097] increase in FVC and 0.030% [95% CI: -0.017, 0.077] increase in FEV1 for green space surface of more than 45,000 m² versus less than 5,250 m² was found, while the associations with NDVI were modest and insignificant. Children residing in areas with a blue space within a buffer of 1000m had increased lung function growth by 0.046% [95% CI: 0.003, 0.089] in FVC and 0.028% [95% CI: -0.010, 0.066] in FEV1 in relation to children residing in areas without blue space within a buffer of 1000m. Observed associations remained after controlling for residential distance from major roads.

CONCLUSIONS: This study indicates the beneficial role of residential green and blue spaces environment in children's respiratory health.

Keywords: Green space, Blue space, Children's environmental health, Respiratory outcomes, Epidemiology



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