

## Publication

## Association between long-term exposure to traffic-related air pollution and subclinical atherosclerosis: the REGICOR study

**JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 1776373**Author(s)** Rivera, M.; Basagaña, X.; Aguilera, I.; Foraster, M.; Agis, D.; de Groot, E.; Perez, L.; Mendez, M. A.; Bouso, L.; Targa, J.; Ramos, R.; Sala, J.; Marrugat, J.; Elosua, R.; Künzli, N.**Author(s) at UniBasel** [Perez, Laura](#) ; [Künzli, Nino](#) ;**Year** 2013**Title** Association between long-term exposure to traffic-related air pollution and subclinical atherosclerosis: the REGICOR study**Journal** Environmental Health Perspectives**Volume** 121**Number** 2**Pages / Article-Number** 223-30**Keywords** ankle-brachial index, average daily traffic, cardiovascular disease, exposure assessment, exposure to tailpipe emissions, intima media thickness, land use regression model, Mediterranean diet, nitrogen dioxide

Background: Epidemiological evidence of the effects of long-term exposure to air pollution on the chronic processes of atherogenesis is limited. Objective: We investigated the association of long-term exposure to traffic-related air pollution with subclinical atherosclerosis, measured by carotid intima media thickness (IMT) and ankle-brachial index (ABI). Methods: We performed a cross-sectional analysis using data collected during the reexamination (2007-2010) of 2,780 participants in the REGICOR (Registre Gironí del Cor: the Gerona Heart Register) study, a population-based prospective cohort in Girona, Spain. Long-term exposure across residences was calculated as the last 10 years' time-weighted average of residential nitrogen dioxide (NO<sub>2</sub>) estimates (based on a local-scale land-use regression model), traffic intensity in the nearest street, and traffic intensity in a 100 m buffer. Associations with IMT and ABI were estimated using linear regression and multinomial logistic regression, respectively, controlling for sex, age, smoking status, education, marital status, and several other potential confounders or intermediates. Results: Exposure contrasts between the 5th and 95th percentiles for NO<sub>2</sub> (25 µg/m<sup>3</sup>), traffic intensity in the nearest street (15,000 vehicles/day), and traffic load within 100 m (7,200,000 vehicle-m/day) were associated with differences of 0.56% (95% CI: -1.5, 2.6%), 2.32% (95% CI: 0.48, 4.17%), and 1.91% (95% CI: -0.24, 4.06) percent difference in IMT, respectively. Exposures were positively associated with an ABI of < 1.3, but not an ABI of > 0.9. Stronger associations were observed among those with a high level of education and in men > 60 years of age. Conclusions: Long-term traffic-related exposures were associated with subclinical markers of atherosclerosis. Prospective studies are needed to confirm associations and further examine differences among population subgroups.

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