



## 1.6 Individual and Neighborhood Deprivation and Carotid Stiffness: The Paris Prospective III Study

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### ABSTRACT

**Background:** Large artery stiffness is an index of vascular ageing associated with cardiovascular mortality. While traditional risk factors for arterial stiffness are known, the contribution of socioeconomic factors are less reported. We sought to determine the relationship between arterial stiffness and socioeconomic deprivation (at the individual and neighborhood levels) in healthy males and females.

**Methods:** In 7803 adults, carotid stiffness was determined by high-precision carotid echotracking. Individual deprivation data included education, living alone, occupation and Evaluation of the Deprivation and Inequalities of Health in Healthcare Centers (EPICES) score. Neighborhood deprivation was determined from commune level data (smallest administrative sub-division) available from French National Institute of statistics and Economic Studies (2011) using principal component analysis. The separate and combined associations between individual and neighborhood deprivation (main exposures) and carotid stiffness (outcome) were quantified using linear and multilevel model adjusted for traditional risk factors including age, mean blood pressure, body mass index, fasting glucose, high density lipoprotein, triglycerides, heart rate, history of cardiovascular disease, smoking, alcohol, and physical activity. Analyses were conducted separately in males and females.

**Results:** Individual deprivation (lower education and occupation in males, and living alone and higher EPICES in both populations) was adversely related to carotid stiffness, independently of potential confounders ( $p < 0.05$ ). Neighborhood deprivation was adversely related to carotid stiffness in males ( $p < 0.05$ ) but not in females.

**Conclusion:** Socioeconomic deprivation, both at the individual and, to a lesser extent, neighborhood level are associated with carotid stiffness in males. Only individual deprivation is associated with carotid stiffness in females.

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