



ERS

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v i r t u a l

## Upbringing in cities is associated with an increased risk of asthma in adulthood

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**Background:** The prevalence of asthma has risen steeply in the last decades and several risk factors have been identified. Studies have suggested a protective effect of farm upbringing on the risk of asthma.

**Aim:** To examine the association between living in cities compared to living in rural areas in the risk of self-reported physician-diagnosed (SR-PD) in adulthood.

**Methods:** 12,449 twins, aged 40-80 years, from the Danish Twin Registry were recruited. The participants completed a questionnaire on upbringing, medical history, life style factors and a clinical examination. Individuals who at age 6 and 15 lived in cities (four largest cities and suburbs) were compared with individuals who lived in rural areas (small towns and villages). Sex, age, smoking, BMI, alcohol consumption, intake of fruits and vegetables, and physical activity were included as covariates.

**Results:** 48% of the participants were males. The mean age was 58.4 years  $\pm$ 9.6; mean BMI was 26.6 kg/m<sup>2</sup>  $\pm$  4.4. The prevalence of SR-PD asthma was 7.3%.

A multiple logistic regression showed an increased risk of SR-PD asthma in individuals who lived in cities at both age 6 and 15, OR=1.28 (1.31-1.48), p=0.001. Sensitivity analyses showed that the risk was more increased in younger age groups; 50-60 years, OR=1.33 (1.02-1.74), p=0.04 and 40-50 years; 1.47 (1.12-1.91), p=0.005.

**Conclusions:** In this large nationwide study we found that individuals living in cities during their childhood have a 28% increased risk of SR-PD asthma as adults. These results underline the importance of residency during childhood and subsequent risk of asthma.