

Publication

Father's environment before conception and asthma risk in his children: a multi-generation analysis of the Respiratory Health In Northern Europe study

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Whereas it is generally accepted that maternal environment plays a key role in child health, emerging evidence suggests that paternal environment before conception also impacts child health. We aimed to investigate the association between children's asthma risk and parental smoking and welding exposures prior to conception.; In a longitudinal, multi-country study, parents of 24 168 offspring aged 2-51 years provided information on their life-course smoking habits, occupational exposure to welding and metal fumes, and offspring's asthma before/after age 10 years and hay fever. Logistic regressions investigated the relevant associations controlled for age, study centre, parental characteristics (age, asthma, education) and clustering by family.; Non-allergic early-onset asthma (asthma without hay fever, present in 5.8%) was more common in the offspring with fathers who smoked before conception {odds ratio [OR] = 1.68 [95% confidence interval (CI) = 1.18-2.41]}, whereas mothers' smoking before conception did not predict offspring asthma. The risk was highest if father started smoking before age 15 years [3.24 (1.67-6.27)], even if he stopped more than 5 years before conception [2.68 (1.17-6.13)]. Fathers' pre-conception welding was independently associated with non-allergic asthma in his offspring [1.80 (1.29-2.50)]. There was no effect if the father started welding or smoking after birth. The associations were consistent across countries.; Environmental exposures in young men appear to influence the respiratory health of their offspring born many years later. Influences during susceptible stages of spermatocyte development might be important and needs further investigation in humans. We hypothesize that protecting young men from harmful exposures may lead to improved respiratory health in future generations.

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