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Title: Farming environment during infancy and lung function at age 31 – Prospective birth cohort study in Finland

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Body: Background: Respiratory diseases are an occupational health problem among farmers. In contrast, farming environment during childhood has been reported to protect from atopic sensitization and asthma. The prospective association between farming environment during infancy and lung function in adulthood has not been studied earlier. Aims: Investigate the prospective associations between farming environment during infancy and lung function at age 31. Methods: In a prospective birth cohort study, 5676 subjects born in northern Finland in 1966 were followed up at the age of 31 years. Prenatal exposure to the farming environment was documented prior to or at birth. At age 31, information on health status, current occupation and childhood pet exposure was collected by questionnaire. Forced expiratory volume in 1s (FEV1) and forced vital capacity (FVC) were measured by spirometry and ratio of FEV1: FVC calculated (FEV%). Multivariate linear regression models were used to adjust for multiple potential confounders. Results: To be born into a farmer family was associated with higher FEV1 (37 ml; 95% CI 5 to 68 ml) and FVC (40 ml; 95% CI 5 to 75 ml) at age 31. Having farm animals during infancy was associated with higher FEV1 (30 ml; 95% CI 1 to 60 ml). No associations were seen with FEV%. Having dogs in childhood showed similar associations. There was some suggestion for a dose-dependent association with number of animal species during childhood and higher FEV1 and FVC at age 31, especially among women. Conclusion: Childhood in a farming environment may protect from restrictive-type lung function impairment during adulthood.