# Early life origins of lung ageing : early life exposures and lung function decline in adulthood in two European cohorts aged 28-73 years

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Early life environment is essential for lung growth and maximally attained lung function. Whether early life exposures impact on lung function decline in adulthood, an indicator of lung ageing, has scarcely been studied.; Spirometry data from two time points (follow-up time 9-11 years) and information on early life exposures, health and life-style were available from 12862 persons aged 28-73 years participating in the European population-based cohorts SAPALDIA (n = 5705) and ECRHS (n = 7157). The associations of early life exposures with lung function (FEV1) decline were analysed using mixed-effects linear regression.; Early life exposures were significantly associated with FEV1 decline, with estimates almost as large as personal smoking. FEV1 declined more rapidly among subjects born during the winter season (adjusted difference in FEV1/year of follow-up [95%CI] -2.04ml [-3.29;-0.80]), of older mothers, (-1.82 ml [-3.14;-0.49]) of smoking mothers (-1.82ml [-3.30;-0.34] or with younger siblings (-2.61ml [-3.85;-1.38]). Less rapid FEV1-decline was found in subjects who had attended daycare (3.98ml [2.78;5.18]), and indicated in subjects with pets in childhood (0.97ml [-0.16;2.09]). High maternal age and maternal smoking appeared to potentiate effects of personal smoking. The effects were independent of asthma at any age.; Early life factors predicted lung function decline decades later, suggesting that some mechanisms related lung ageing may be established early in life. Early life programming of susceptibility to adult insults could be a possible pathway that should be explored further.

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