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Title: Secular trends in childhood obesity, asthma, eczema and hayfever over 45 years

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Body: Background. The childhood asthma “epidemic” which took place during the 1980s and 1990s is at least partly explained by changes in lifestyle. Childhood obesity prevalence has also risen, reflecting lifestyle changes. Here we tested the hypothesis that the rise in asthma prevalence in the population paralleled that in obesity. Methods. A history of asthma, hayfever, eczema and wheeze in the last three years was obtained in 1964, 1989, 1994, 1999, 2004 and 2009. Prevalence of overweight and obesity (IOTF BMI cut-offs equivalent to 25 and 30 at age 18 years) were determined from a separate whole population survey of height and weight at school entry in children in Aberdeen and Aberdeenshire born between 1969 and 2005. Results. Asthma and related outcomes were determined in 17,951 children in the six surveys and in these years height and weight were available in 29,348 children in the separate study. The prevalence of asthma was between 4 and 28%, for eczema between 5 and 34%, for hayfever between 3 and 27%, for recent wheeze between 10 and 28% and for obesity between 1 and 4%. There were correlations between prevalence at each time point for obesity and asthma (ρ 0.83, $p=0.042$), eczema (ρ 0.94, $p=0.005$) and hayfever (ρ 0.94, $p=0.005$) but not for wheeze. There were no correlations between overweight and outcomes.

Conclusions. The simultaneous rise in both obesity and asthma might suggest a common underlying mechanism.