

Jobs, junk food, and geography—asthma risks mount up

For the study about latitude and allergic diseases see *Ann Allergy Asthma Immunol* 2013; **110**: 80–85.e1. DOI:10.1016/j.anai.2012.11.005

For the study on asthma and occupation see *Thorax* 2013; published online Jan 21. DOI:10.1136/thoraxjnl-2012-202151

For more on fast foods and asthma, rhinoconjunctivitis, and eczema see *Thorax* 2013; published online Jan 14. DOI:10.1136/thoraxjnl-2012-202285

Asthma is a disorder that seems to arise from complex interactions between multiple risk factors. Genetic susceptibility, atopy, household and environmental allergens, viral and bacterial infections, tobacco smoke, obesity, perinatal factors, diet, environmental pollutants, and occupational exposure to chemicals have all been linked to the risk of developing asthma.

As if the list wasn't long enough, now the latitude at which you live may influence your chances of developing asthma, according to a study published in the *Annals of Allergy, Asthma and Immunology*.

The findings showed that proximity to the Equator and high UV-B exposure increased the odds of current asthma in atopic individuals, but in those who were not atopic, proximity to the Equator and high UV-B exposure decreased the odds of current asthma.

Study co-author Melanie Matheson (University of Melbourne, VIC, Australia) told *The Lancet Respiratory Medicine* (TLRM): "There are several possible explanations including not only changes to Vitamin D levels with latitude, but also variations in aeroallergen exposure and climatic factors associated with changes in latitude."

Seif Shaheen (Queen Mary University of London, UK) thought that changes in Vitamin D were unlikely to explain the findings since "the evidence to

date that vitamin D protects against asthma is both conflicting and not very convincing".

Asthma has also been linked to occupation. A study published in *Thorax* reported that about 16% of adult onset asthma could be due to occupational exposures. The findings were based on work histories for 9488 members of the British 1958 birth cohort up to 42 years of age.

"There are many occupations that are thought to cause asthma, and in this study, 18 occupations were clearly linked with asthma risk, four of which were cleaning jobs and a further three were likely to involve exposure to cleaning products", said lead author Rebecca Gosh (Imperial College, London, UK).

The researchers noted that of the 7406 cohort members with no asthma or wheezy bronchitis in childhood, 639 (9%) reported asthma by age 42 years. Many of the occupations identified in the study have been previously identified as risks for asthma (eg, farmers, hairdressers, and printing workers). Adult onset asthma was associated with five of the 18 high-risk Asthma Specific Job Exposure Matrix (ASJEM) exposures—namely, flour exposure, enzymes, cleaning or disinfecting products, metal and metal fumes, and textile production.

"The strength of this study is that it truly measured adult onset asthma as the cohort had been followed up from birth and were repeatedly asked about wheezing and asthma in childhood. The study did not rely on adult recall of childhood illness, which is very unreliable. It confirms what we already know about occupational asthma, which, unlike other forms of asthma, is entirely preventable", said Shaheen.

Diet—particularly fast food—has also come under scrutiny, as a risk factor in asthma, and results from another study published in *Thorax* seems to confirm this link. The investigators collected self-completed

questionnaires about types of food eaten and frequency of consumption, as well as symptoms of asthma, eczema, and rhinoconjunctivitis from 319 000 individuals aged 13–14 years from 51 countries, and parent-completed similar questionnaires from more than 181 000 parents of children aged 6–7 years from 31 countries.

Lead author Philippa Ellwood (Auckland University, NZ) told TLRM "our analysis found that three or more weekly servings of fast food were linked to a 39% increased risk of severe asthma among teens and a 27% increased risk among children".

In the adolescent group, fruit intake was inversely associated with current wheeze and severe asthma, whereas fast-food intake greater than three times per week was strongly correlated with current wheeze or severe asthma. The authors suggest that the high levels of saturated and trans-fatty acids found in fast food might affect immunity, whereas the fruit's antioxidants might protect against allergy. Ellwood cautioned that although the results showed an association between fast food and asthma, "it does not always mean that the link between food and allergies is causal".

Shaheen commenting on the study said the investigators "are rightly tentative about whether this link may be causal. First, they only asked about limited foods and it's a cross-sectional study, so it is impossible to know whether dietary habits have preceded the onset of disease. Second, there is a high likelihood that the findings may be confounded—either by socioeconomic factors which have not been adequately controlled for or other dietary factors".

Further research is needed to guide the general population as to the potential risks of exposure to allergens.

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