- Smoking

Children whose parents breathed cigarette smoke more likely to get asthma – study

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Children are much more likely to develop asthma if their father was exposed to tobacco smoke when he was growing up, a new study has found.

And they are at even greater risk of suffering from the common lung condition if their father was a smoker himself, according to the international team of researchers.

The findings, published in the European Respiratory Journal, provide further evidence for the possible existence of a "transgenerational effect" in which smoking can damage the health of people born two generations later.

"We found that the risk of non-allergic asthma in children increases by 59% if their fathers were exposed to secondhand smoke in childhood, compared to children whose fathers were not exposed. "The risk was even higher, at 72%, if the fathers were exposed to secondhand smoke and went on to smoke themselves," said Jiacheng Liu, from Melbourne University, one of the coauthors.

The study was undertaken by a team of Australian, British and Sri Lankan researchers.

Dr Dinh Bui, another co-author, said: "Our findings show how the damage caused by smoking can have an impact not only on smokers but also their children and grandchildren."

Given their conclusions, men should try to avoid smoking if at all possible, to reduce the risk of affecting the health of their own sons or their offspring, Bui added.

Jon Foster, the health policy manager at Asthma + Lung UK, said: "This research is truly shocking, showing that the negative effects of smoking can last for generations. The fact that children born today have a 59% increased risk of developing asthma if their father was exposed to passive smoking as a child shows the huge impact smoking has on other people's health."

The findings are based on the researchers' analysis of detailed data about the health of 1,689 pairs of fathers and their offspring collected as part of the long-running Tasmanian Longitudinal Health Study in Australia.

The paper says: "Our findings suggest that when boys are passively exposed to their parents' tobacco smoke before the age of 15 years, their offspring have increased risk of nonallergic childhood asthma, but not allergic asthma.

“Paternal smoke exposure before the age of 15 years is a major risk factor for non-allergic asthma.”
Prof Jonathan Grigg, the chair of the European Respiratory Society’s tobacco control committee, who was not involved in the study, said it added to the evidence of smoking’s intergenerational risk. Children needed to be protected from further damage by ministers taking further robust action to curb smoking, he said. He called for stop smoking services to be increased and for adults to be routinely asked at any NHS appointment if they smoked, and offered help to quit if they do.
Bui said epigenetic changes triggered by smoking – modifications to genes in which someone’s DNA sequence is not altered – were the likeliest reason for the significantly raised risk of asthma in children whose father inhaled secondhand smoke in their youth.
“Epigenetic changes can be caused by environmental exposures such as smoking, and they may be inheritable to next generations. Specifically, when a boy is exposed to tobacco smoke, it may cause epigenetic changes to his germ cells. These are the cells that go [on] to produce sperm.
“Later on, these changes will be inherited by his children, which in turn can damage their health, including a higher risk of developing asthma. In boys, germ cells continue to develop until puberty, and this is a vulnerable period when exposure to tobacco smoke can affect the cells and cause epigenetic changes,” Bui said.