

Early intervention may minimise later lung problems

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University of Melbourne research has found that early intervention may minimise the later impact of some lung conditions. Credit: University of Melbourne

A major study has found that controlling asthma through appropriate

monitoring and medication is among several variables that can affect whether someone develops chronic obstructive pulmonary disease (COPD) in later life.

The University of Melbourne-led study, published in *The Lancet Respiratory Medicine*, was the world's first to characterise [lung function](#) trajectories that could lead to COPD in a large general population from [early childhood](#) into the sixth decade.

The researchers identified six trajectories, including two new ones. Of the six, three led to COPD, which is a range of conditions that impair breathing, such as emphysema, chronic bronchitis and chronic [asthma](#).

The study found that later COPD risk could be minimised if immunisation was encouraged, if mothers did not smoke and if their children did not smoke when they got older, especially if they had [smoking](#) parents or low [childhood](#) lung function.

Led by Mr Dinh Bui and Professor Shyamali Dharmage at the University of Melbourne School of Population and Global Health's Allergy and Lung Health Unit, the study used data from 2438 participants of the Tasmanian Longitudinal Health Study. It involved a range of university departments and hospitals across Australia and pinpointed six lung function pathways from childhood to middle age.

Professor Dharmage said the findings suggested that early life factors – including allergic diseases, [lung infections](#), parental asthma and [maternal smoking](#) – influenced the three unfavourable lung function trajectories.

She said if study participants did not smoke and controlled their asthma as an adult, they could possibly reduce the impact of what had happened as a child.

"Personal smoking might amplify the effect of maternal smoking and adult asthma might amplify the effect of childhood asthma to determine membership of the worst lung function trajectory," Professor Dharmage said.

"Clinicians and patient[s] with asthma should be made aware of the potential long-term implications of non-optimal asthma control for lung function trajectory throughout life, and this should be investigated in future intervention trials."

The six lung function pathways/trajectories were:

- early below average, accelerated decline (new) – those with lung function below average in childhood followed by an accelerated decline in adulthood;
- persistently low;
- below average;
- early low, accelerated growth, normal decline (new) – those with low lung function in early childhood followed by a catch-up growth during adolescence and remain normal in adulthood;
- persistently high; and
- average.

Three of them – "early below average, accelerated decline", "below average" and "persistently low" – had increased risk of COPD by middle age and were associated with 75 per cent of the COPD burden.

However, this burden could be modified. For people in these categories, reducing maternal smoking, encouraging immunisation and avoiding smoking could minimise later COPD risk.

The two new trajectories both contradicted the notion that lung function established in childhood tracks through life.

The "early low, accelerated growth, normal decline" path also suggested a somewhat surprising pathway, where some children with low lung function in childhood still had an opportunity to grow out of it.

Female and underweight children were more likely to follow this trajectory, which saw them recover some [lung](#) function as they grew bigger and stronger.

More information: Dinh S Bui et al. Childhood predictors of lung function trajectories and future COPD risk: a prospective cohort study from the first to the sixth decade of life, *The Lancet Respiratory Medicine* (2018). [DOI: 10.1016/S2213-2600\(18\)30100-0](https://doi.org/10.1016/S2213-2600(18)30100-0)

Provided by University of Melbourne

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