

# Children who develop asthma have lung function deficits as neonates

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Children who develop asthma by age seven have deficits in lung function and increased bronchial responsiveness as neonates, a new study from researchers in Denmark suggests.

"Previous research on the relationship between neonatal lung function and the development of asthma has been conflicting," said lead author Hans Bisgaard, MD, DMSci, professor of pediatrics at the University of Copenhagen and head of the Danish [Pediatric Asthma](#) Centre. "Our study shows that children with asthma by age seven already had significant airflow deficits and increased bronchial responsiveness as neonates. Lung function deficits also progressed throughout childhood in our study, suggesting a potential opportunity for early intervention."

The findings were published online ahead of print publication in the American Thoracic Society's [American Journal of Respiratory and Critical Care Medicine](#).

The prospective study enrolled a birth cohort of 411 at-risk children of asthmatic mothers. Spirometry was performed at one month in 403 (98 percent) children and again at age seven in 317 (77 percent).

Significant neonatal airflow deficits, as measured by forced expiratory flow at 50 percent% of vital capacity and forced expiratory volume after 0.5 seconds, were observed among the 14 percent of children who developed asthma by age seven. Bronchial responsiveness to methacholine, which provokes narrowing of the airways, was also

significantly associated with the development of asthma. Neonatal airway reactivity was a stronger predictor of asthma than neonatal lung function.

"We found that approximately 40% of the airflow deficit that was associated with asthma in our study was present at birth, while 60% developed through early childhood along with the disease," noted Dr. Bisgaard. "This indicates that both prenatal and early childhood mechanisms are potential intervention targets for the prevention of asthma."

The study used a homogenous study sample, which might limit [extrapolation](#) of the results to other populations.

"It seems that [lung function](#) changes associated with asthma occur very early in life and maybe even before birth," concluded Dr. Bisgaard. "This may explain the lack of effect from early intervention with inhaled corticosteroids and should direct research into the pathogenesis and prevention of [asthma](#) towards the earliest phases of life."

Provided by American Thoracic Society

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