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Impact of lifetime body mass index trajectories on the incidence and persistence of adult asthma

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Shareable abstract (@ERSpublications)
Individuals belonging to "child average-increasing" and "high" BMI trajectories from childhood to middle age of life may be at risk of adult incident asthma and bronchial hyperresponsiveness; the risk was up to 4-fold for the high group https://bit.ly/3ovbX2P

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Abstract

Background High body mass index (BMI) trajectories from childhood to adulthood are associated with the development of some chronic diseases, but whether such trajectories influence adult asthma has not been investigated to date. Therefore, we investigated associations between BMI trajectories from childhood to middle age (5–43 years) and incidence, persistence and relapse of asthma from ages 43 to 53 years.

Methods In the Tasmanian Longitudinal Health Study (n=4194), weight and height were recorded at eight time-points between 5 and 43 years of age. BMI trajectories were developed using group-based trajectory modelling. Associations between BMI trajectories and asthma incidence, persistence and relapse from age 43 to 53 years, bronchial hyperresponsiveness (BHR) at age 50 years, and bronchodilator responsiveness at age 53 years were modelled using multiple logistic and linear regression.

Results Five distinct BMI trajectories were identified: average, low, child high-decreasing, child average-increasing and high. Compared with the average trajectory, child average-increasing and high trajectories were associated with increased risk of incident asthma (OR 2.6, 95% CI 1.1–6.6 and OR 4.4, 95% CI 1.7–11.4, respectively) and BHR in middle age (OR 2.9, 95% CI 1.1–7.5 and OR 3.5, 95% CI 1.1–11.4, respectively). No associations were observed for asthma persistence or relapse.

Conclusions Participants with child average-increasing and high BMI trajectories from childhood to middle age were at higher risk of incident adult asthma. Thus, encouraging individuals to maintain a normal BMI over the life course may help reduce the burden of adult asthma.