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Dietary antioxidant intake in school age and lung function development up to adolescence

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Dietary antioxidant intake at school age may influence lung function development as measured by FEV₁ up to adolescence among children with asthma. In contrast, no association was observed among children without asthma. <http://bit.ly/2CzEZ8W>

Cite this article as: Sdona E, Hallberg J, Andersson N, *et al.* Dietary antioxidant intake in school age and lung function development up to adolescence. *Eur Respir J* 2020; 55: 1900990 [https://doi.org/10.1183/13993003.00990-2019].

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ABSTRACT Dietary antioxidant intake has been hypothesised to influence lung function. The association between total antioxidant capacity (TAC) of the diet at age 8 years and lung function development up to 16 years in 2307 participants from the Swedish population-based birth cohort BAMSE (Children, Allergy, Milieu, Stockholm, Epidemiology) was investigated.

Information on TAC was obtained from a food frequency questionnaire at 8 years. Lung function was measured by spirometry at 8 and 16 years, impulse oscillometry (IOS) and exhaled nitric oxide fraction (F_{eNO}) at 16 years. Low lung function was defined as forced expiratory volume in 1 s (FEV₁) z-score below the 25th percentile. Longitudinal associations between TAC and lung function were analysed by mixed effect models adjusted for potential confounders. Stratification by asthma at 8 years was performed to examine effect modification.

The median TAC intake was 10067 μmol Trolox equivalents (TE)·g⁻¹, with males having a lower mean compared to females (9963 *versus* 10819 μmol TE·g⁻¹). In analyses of lung function change between 8 and 16 years, there were no statistically significant associations between TAC in tertiles and spirometry results for the total study population. Among children with asthma at 8 years (prevalence 7%), higher TAC was associated with higher mean FEV₁ (0.46 SD, 95% CI 0.11–0.80) and decreased odds of low lung function at 16 years (OR 0.28, 95% CI 0.12–0.65). There were no associations between TAC and forced vital capacity or IOS/ F_{eNO} results.

High dietary antioxidant intake in school age may be associated with improved lung function development from school age to adolescence among children with asthma.