

Obesity in early childhood is associated with atopic dermatitis later in childhood and adolescence in the United States

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Background: Several risk factors contribute to the development of atopic dermatitis (AD) in childhood. Previous cross-sectional studies demonstrated associations between obesity and AD in childhood. However, few longitudinal studies examined the temporal relationship between obesity and AD, i.e. does obesity cause AD or vice versa.

Methods: We analyzed data from the Fragile Families and Child Wellbeing Study, a longitudinal US birth cohort study consisting of 4898 urban children. We investigated associations of 1. overweight ($\geq 85^{\text{th}}$ BMI-percentile) or obesity ($\geq 95^{\text{th}}$ BMI-percentile) with AD during childhood overall, 2. overweight or obesity at age 5 years and the subsequent development of AD at ages 9 or 15 years, and 3. AD at age 5 years and subsequent development of overweight or obesity at ages 9 or 15 years.

Results: Overall, being overweight and/or obese was associated with AD during childhood at any pediatric age (logistic regression; crude odds ratio [OR] [95% confidence interval {CI}] obesity: 1.25 [1.03-1.51], overweight: 1.22 [1.02-1.50]). Additionally, obesity and/or overweight at age 5 years (among those without AD) were associated with AD at ages 9 or 15 years (adjusted OR [95% CI] for overweight: 1.38 [1.06-1.80]; obesity: 1.43 [1.03-1.97]). AD at age 5 years (among those with normal weight) was not associated with overweight or obesity at ages 9 or 15 years (adjusted OR [95% CI] for overweight: 1.11 [0.85-1.44]; obesity: 1.16 [0.87-1.54]).

Conclusions: Overall, obesity was associated with AD in childhood/adolescence. In particular, obesity in early childhood was associated with higher prevalence of AD later in childhood or adolescence. However, AD during early childhood was not associated with obesity later in childhood or adolescence.