

Overweight linked with reduced lung function in children with a history of early childhood wheezing

January 2 2014

Overweight and obesity are significant risk factors for reduced lung function in school-aged children with a history of early childhood wheezing, according to a study carried out at the University of Eastern Finland. The results also showed that the use of inhaled corticosteroids for asthma in childhood may result in reduced bone mineral density in early teenage years.

"In the light of these results, weight control is especially important for children who have suffered from bronchiolitis in early childhood. As to the use of [inhaled corticosteroids](#), particular attention should be paid to using the lowest sufficient dose to maintain adequate [asthma](#) control," says Ms Virpi Sidoroff, MD, who presented the results in her doctoral dissertation.

Growing evidence shows that overweight children face increased asthma risk. The link between asthma, allergy, [lung function](#), and obesity in children is unclear. Paediatric use of inhaled corticosteroids (ICS) for asthma has steadily increased. However, knowledge of their long-term safety to bone health remains insufficient.

Between 1991 and 1992, 100 children aged 1–23 months and hospitalised for wheezing were recruited to an early-intervention bronchiolitis study. An additional 14 children were later included in the study group. At the age of four, seven, and 12 years, the participants

were invited to follow-up visits consisting of medical examinations, weight and height measurements, skin prick tests for common allergens, and exercise challenge tests to show bronchial hyperreactivity. At the age of twelve years, [bone mineral density](#) (BMD) was measured by dual-energy x-ray absorptiometry (DXA) and peripheral quantitative computed tomography (pQCT). The history of ICS use was collected from medical records. Out of the 100 recruited participants, 82 took part in the follow-up visits. 89 out of 114 children attended the bone [mineral density](#) study.

At 12 years of age, 38% of the participants were asthmatic and 33% were overweight, 20% being obese. The current overweight was associated with a decreased FEV1/FVC ratio at both 7 and 12 years of age and reduced flows in small airways at 12 years. In conclusion, [overweight and obesity](#) were significant risk factors for reduced lung function at school age in this asthma risk group. However, the study did not reveal a connection between asthma and overweight.

Using ICS for asthma may reduce bone mineral density

During follow-up, 73 of the children received ICS medication. The mean cumulative ICS dose was 517 mg, varying from 31 to 1,813 mg. The cumulative ICS dose was associated with reduced bone mineral density measured by DXA in the femoral neck, and with a lower total bone, cortical, and trabecular bone mineral density documented by pQCT in the radius. The lumbar spine BMD and the apparent volumetric BMD of femoral neck were reduced when ICS were used regularly before 6 years of age. The results indicate that the use of ICS during childhood may reduce [bone mineral](#) density measured during early teenage years.

Ms Sidoroff points out that despite these findings, asthma should never

be left untreated. "The aim should be to use the lowest effective dosage of ICS, increasing the dosage only temporarily if symptoms get worse."

More information: [epublications.uef.fi/pub/urn_i...
78-952-61-1313-5.pdf](https://epublications.uef.fi/pub/urn_i...78-952-61-1313-5.pdf)

Provided by University of Eastern Finland

Citation: Overweight linked with reduced lung function in children with a history of early childhood wheezing (2014, January 2) retrieved 23 April 2024 from <https://medicalxpress.com/news/2014-01-overweight-linked-lung-function-children.html>

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