

Heavy exercise may produce asthma-like symptoms even in healthy children

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Children who undergo brief periods of intense exercise may exhibit lung dysfunction or other symptoms similar to those experienced by asthma patients, even when no history of asthma exists, according to a study conducted by researchers at the University of California's Irvine and Miller Children's Hospital.

The results of the study will be presented at the ATS 2010 International Conference in New Orleans.

"Studies have shown that in adults, [vigorous exercise](#) can cause wheezing and a decrease in pulmonary function testing (PFT), even when there is no prior history of [asthma](#)," said lead author and hospital clinician Alladdin Abosaida, M.D. "However, the extent of exercise-associated PFT abnormality in healthy children has received relatively less attention.

"The results of this study indicate that short bouts of heavy exercise do cause a decrease in lung function testing in healthy children without a history of asthma or allergies," he said

Dr. Abosaida and colleagues examined the effects of exercise in 56 healthy children with no clinical history of asthma or allergy, measuring [lung function](#) following each [exercise test](#).

"We evaluated two exercise protocols in each child - a constant work rate exercise test commonly used for evaluation of exercise-induced

asthma, and a progressive exercise test typically used to determine an individual's [aerobic capacity](#)," Dr. Abosaida said.

Nearly half of the children tested had at least one abnormal result when pulmonary function was measured following exercise, he noted. Decrements in PFT measurements typically occurred when bronchial tubes - the primary airways allowing air to enter and exit the lungs - become constricted in response to rigorous activity. This effect, called bronchoconstriction, can arise as the result of an inflammatory response triggered by heavy exercise.

Dr. Abosaida said the results were surprising.

"We did not expect to see pulmonary function abnormalities after short periods of heavy exercise in such a large number of healthy children in our subject population," he said. "We speculate that either the [inflammatory response](#) to exercise or cellular changes that may occur as the result of dehydration of the airway surface, or both, led to mild airway obstruction."

Additional research will need to be focused on determining the mechanism of lung dysfunction in children following heavy exercise, and may help identify potential interventions, Dr. Abosaida said.

"More studies are needed to understand the pathogenesis and management plan of exercise-induced bronchoconstriction in healthy children," he added. "In addition, further comparisons are needed between the two exercise protocols for screening of bronchoconstriction to avoid the false negative results that may occur by using a single type of test."

Provided by American Thoracic Society

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