Lung function declines as chest deformity deepens

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A common deformity that cases a depression in the chest wall inhibits lung function as the cavity grows deeper, a national study of 327 patients published in the *Journal of Pediatrics* found.

"These results confirm what we have observed anecdotally, that children with more severe pectus excavatum report more incidents of shortness of breath and a higher degree of exercise intolerance," said one of the study's lead authors, Dr. Robert Kelly, a pediatric surgeon at Children's Hospital of The King's Daughters in Norfolk, Virginia.

Pectus excavatum, a condition sometimes known as sunken chest, occurs when the chest cartilage grows abnormally and the chest wall progressively collapses. A CHKD surgeon, Dr. Donald Nuss, developed a minimally invasive surgery to correct the condition 25 years ago, and the hospital has remained at the forefront of treatment and research on chest wall deformities ever since.

The study on lung function included 327 pre-correction pectus excavatum patients ages 6 to 21 from hospitals around the nation, including CHKD. The study used standardized medical measurements to determine the severity of the pectus excavatum and a spirometer, a device that measures the volume of air expelled from the lungs, to assess lung function.

"The results suggest a correlation between the severity of pectus excavatum and lung function," said Dr. Kelly. "The more severe the

deformity, the more lung function was compromised." He noted that the effect was primarily from lung restriction, not airway obstruction.

While the decline is relatively modest, Dr. Kelly believes researchers next need to study lung function in pectus excavatum patients at the larger tidal volumes required during exercise.

Provided by Children's Hospital of The King's Daughters