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Title: Dynamic hyperinflation in cystic fibrosis

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Body: Introduction: Cystic fibrosis (CF) is the most common life-limiting autosomal recessive disease. CF affects the exocrine glands of lungs, pancreas, intestines and liver. Lungs are usually affected more critically. Exercise tolerance is reduced in patients with CF. It has been shown that pulmonary function weakly correlates with peak exercise capacity. Furthermore, it has been demonstrated that oxygen desaturation during exercise is present in severe lung involvement, but not in mild to moderate disease. Peripheral muscle dysfunction has been demonstrated to be to main factor limiting factor of exercise tolerance. Few studies have looked at dynamic hyperinflation as a limiting factor of exercise tolerance. Objectives: The aim of this study is was to evaluate the relationship between dyspnea and dynamic hyperinflation in CF during exercise. Results: Six patients with mild to moderate CF (FEV₁ 45 to 79%) were studied during incremental treadmill exercise and changes in inspiratory capacity (IC) were obtained to measure dynamic hyperinflation. During the exercise, dyspnea was assessed by Borg scale. Of the 6 CF patients, 5 patients showed a decrease in IC (dynamic hyperinflation). Furthermore, there was a direct relation between dyspnea assessed by Borg scale and change in IC ($r = 0,38$). Conclusion: Our study is the first to demonstrate dynamic hyperinflation in mild to moderate CF and a direct relationship between dyspnea and IC in CF during exercise. This provides a better understanding on exercise limitations in CF.