Opportunity

Cystic Fibrosis (CF) is a chronic, genetic, multi-system disease that leads to many secondary complications, including progressive obstructive lung disease. Airway clearance techniques and aerobic conditioning are essential in preventing decline in lung function, lung infections, and disease-related hospitalizations.

This systematic review seeks to augment efforts currently being made in exercise programming with a small group of adult patients with cystic fibrosis at the Cystic Fibrosis Center at Massachusetts General Hospital. Identifying factors that increase patient adherence to exercise within this population and addressing those factors in exercise programming may significantly improve patient quality of life, with decreased risks of infections, exacerbations, and hospitalizations.

Approach

A systematic review of the literature between the years 2006-2016 was conducted to investigate factors influencing adherence to exercise in this population. Three databases were systematically searched for studies using the search terms “exercise adherence AND cystic fibrosis” that met established inclusion and exclusion criteria. Study analysis and quality assessment were performed via STROBE to identify the current adherence of patients with cystic fibrosis to exercise regimes and factors that influence exercise adherence.

Results

Only one study met the inclusion criteria for this systematic review. There are a limited number of existing randomized controlled trials (RCTs) regarding exercise adherence in patients with CF. As a result, little is known about the effects of direct interventions on exercise adherence in this population.

This systematic review of the literature from the last ten years has demonstrated a need for further research regarding cystic fibrosis and adherence to exercise. The literature demonstrates that patients with cystic fibrosis are burdened by their disease management, which limits routine exercise. Thus, future research should be focused on strategies to increase patient adherence to exercise in this population, as well as successful methods to track exercise. There appears to be a lot of potential for both wearable technologies and mobile applications.

Impact

Understanding factors that affect patient adherence to exercise may improve efforts of physical therapists for exercise interventions in this patient population. HIIT has been shown to increase aerobic capacity. Aerobic capacity is proven to be a predictor of life expectancy in patients with CF. A barrier to exercise completion for patients with CF is the associated time burden. HIIT may appeal to patients with cystic fibrosis because it involves a series of brief, but vigorous, activities. This research highlights the potential for increased patient adherence to exercise if there is regular communication with a supervising physical therapist. The patients participating in the program at MGH should be encouraged to report their exercise log to the supervising clinician on a weekly basis and should be seen to progress their exercise regimen as necessary.

This research was incorporated into three months of High Intensity Interval Training (HIIT) exercise programming at beginner, intermediate, and advanced levels. Instructional videos were filmed for patient use.