

Singing and Cystic Fibrosis: Rationale and Scientific Underpinnings for the Use of Voice Lessons as an Adjunct Treatment.

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Abstract

The idea that singing can be therapeutic is not a new one. However, most scientific attention has been given to the psychological effects of singing rather than its physical benefits. To date, relatively few studies have addressed the use of singing as a physical therapy, particularly in the treatment of pulmonary disease. This is surprising, given the physicality required in singing specifically in terms of breathing and body awareness. Although anecdotal evidence exists to support the use of singing as an intervention in cystic fibrosis (CF), no studies have investigated the efficacy of voice lessons as an airway clearance technique for this disease.

CF is an autosomal recessive disease which affects approximately 25,000 people in the US. The disease is characterized by thickened secretions in the respiratory and digestive tracts resulting from a defect in the cystic fibrosis transmembrane conductance regulator (CFTR) protein channel. These secretions are difficult to clear by natural mechanisms but must still be removed from the respiratory tract to prevent lung deterioration and pulmonary function decline. Although therapeutic interventions have improved the lifespan of CF patients, patient quality of life is dampened by the demands of disease management which includes daily physical therapy and pharmaceuticals.

Several types of physiotherapy are available for CF patients to clear the thickened respiratory tract secretions. These treatments are based on physiological principles which have been shown to aid in mucus clearance, such as cephalad airflow, the combination of expiratory airflow with high frequency oscillation at the chest wall or oral cavity, and repetitive cough. Diaphragmatic breathing, respiratory muscle training and voicing during therapy have also been shown to improve or maintain pulmonary function in CF patients.

The physiology of singing is similar to the principles of airway clearance techniques in that it involves controlled cephalad airflow resulting in pressure oscillations and vibration. Singers build awareness of their bodies and learn to manage their breath. Singing is also a relatively inexpensive and enjoyable activity which requires little equipment or space. Singing should not replace medically recommended therapies, but it may be a viable adjunct therapy.

Research currently in progress is investigating the effects of private voice lessons on pulmonary function and quality of life in adult cystic fibrosis patients. This presentation will focus on the scientific underpinnings and rationale behind the use of singing as an airway clearance technique. Pedagogical implications such as vocal health concerns for singers with pulmonary disease and appropriate exercises will also be addressed. The author can be reached at rgoldenb08@su.edu