

# Singing Lessons for Respiratory Health: A Literature Review

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**Summary: Objective.** Several studies have explored the role of music and singing as a treatment for respiratory symptoms. The objective of this paper was to review the current body of literature in regard to the use of singing as both a physiological and a psychological therapy for respiratory disease and assess the role the singing teacher might play in this treatment.

**Study Design.** This is a literature review, discussion of results and directions for further research.

**Method.** Multiple databases were searched using keywords such as “respiratory,” “physiotherapy,” and “pulmonary” in conjunction with “singing.” Studies that met selection criteria were summarized and analyzed.

**Results.** Seventeen studies pertaining to multiple conditions including chronic obstructive pulmonary disease, asthma, cystic fibrosis, cancer, Parkinson disease, quadriplegia, and multiple sclerosis were analyzed. All studies reported trends of positive physical and/or quality of life outcomes after a series of singing lessons, regardless of statistical significance. Several noted improvements in maximum expiratory pressure and overall breathing technique. Many studies included open-ended interviews revealing participants’ perception of singing as an effective therapy that was fun, improved mood, taught breathing and breath control, was a good exercise for the lungs, and had improved physical functioning.

**Conclusions.** Singing can be used as an adjunctive treatment for respiratory disease, with the best results occurring after long-term study. Group lessons and a strong teacher relationship feed the need for social interaction and support, which can facilitate treatment compliance. Further research is warranted.

**Key Words:** Singing–Respiratory health–Physiotherapy–Voice pedagogy–Music therapy.

## INTRODUCTION

Recently, several studies have explored the efficacy of music, and in particular, singing, as an effective psychological and physiological therapy.<sup>1,2</sup> These benefits have been reinforced by social media through memes and news reports advocating the benefits of singing.<sup>3</sup> With this information, patients with chronic respiratory disease and others with respiratory ailments may seek out opportunities to sing. With evidence that singing can improve respiratory symptoms, the widespread dissemination of this information through traditional and social media, and the possibility that a patient with respiratory disease might seek out private lessons, the role, if any, a private voice teacher might play in the use of singing as a treatment for respiratory disease was explored.

In this paper, the current body of research involving singing as a treatment for respiratory health and symptoms are summarized. Themes supporting the use of singing as adjunctive therapy are identified and recommendations were made for the voice teacher who teaches patients with respiratory disease.

## METHOD

The following databases were searched from their inception to April 2016: ERIC, CINAHL, PsycARTICLES, MEDLINE, Academic Search Complete, and ProQuest Dissertations and Theses Global. Using the search terms “respiratory,” “pulmonary,” “COPD,” “asthma,” “physical therapy,” “physiotherapy,” “cystic

fibrosis,” “bronchiectasis,” in conjunction with “singing,” we found several studies related to singing and chronic respiratory conditions and symptoms. The bibliographies of those articles and dissertations identified were searched for additional relevant articles. To meet inclusion criteria, articles must have been in English, from peer-reviewed journals, used singing as a treatment for respiratory disease and respiratory ailments secondary to disease, and experimental in design. Dissertations needed to be written in English and used singing as a treatment for respiratory disease and respiratory ailments secondary to disease. Seventeen studies met the inclusion criteria and were selected for summary, review, and analysis.

## RESULTS

Seventeen studies that met the inclusion criteria are summarized below. [Table 1](#) summarizes the design, number of participants included in the final analysis, total treatment hours, who instructed the singing, and the physical and quality of life outcomes measured in each study. [Table 2](#) summarizes quality of life improvements.

### Chronic obstructive pulmonary disease

Engen<sup>4</sup> investigated the effects of diaphragmatic breathing on pulmonary function in seven elderly patients with emphysema. Participants met twice weekly for 6 weeks of group vocal instruction; 45-minute sessions included structured posture and breath management exercises, vocal warm-up exercises, and song singing. Changes in breath control, as measured by single-breath counting, and breath support, as measured by maximum intensity achieved while reading, were significant ( $P = 0.038$  and  $P < 0.000$  respectively). Nearly all participants changed their breathing mode from clavicular to diaphragmatic and were able to maintain this breathing mode 2 weeks post treatment.

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**TABLE 1.**  
**Summary of Studies**

Disease	Author(s)	Study Design	Number of Participants*	Total Treatment Hours	Music Instruction	Outcome Measurements†
COPD	Engen, 2003 <sup>4</sup>	GL	7	9	Music therapist	Spirometry Inspiratory threshold 6-Minute distance walk <b>Single-breath counting (<math>P = 0.038</math>)</b> <b>Maximum intensity while reading (<math>P &lt; 0.000</math>)</b> <i>Duke Health Profile</i> <b>Visual analog scale</b> <b>Interference in daily activities (<math>P &lt; 0.01</math>)</b> Survey
	Bonilha et al, 2009 <sup>5</sup>	RCT	13	24	Physiotherapist and voice teacher	Spirometry <b>MEP (<math>P = 0.05</math>)</b> MIP Arterial blood gas Basal Dyspnea Index <b>SGRQ (<math>P = 0.001</math>)</b>
	Lord et al, 2010 <sup>6</sup>	RCT	28	12	Voice teacher who is also a music therapist	Incremental shuttle walk Breath-hold test Single-breath counting <b>HADS</b> <b>Anxiety score (<math>P = 0.03</math>)</b> SGRQ <b>SF-36</b> <b>Physical component (<math>P = 0.02</math>)</b>
	Lord et al, 2012 <sup>7</sup>	RCT	24	16	3 voice teachers	Incremental shuttle walk Breath-hold test Single-breath counting HADS COPD assessment test Psychologist interview <b>SF-36</b> <b>Physical component (<math>P = 0.02</math>)</b>
	Pacheco et al, 2014 <sup>8</sup>	CS	4	10	Physiotherapist and voice teacher	Spirometry <i>MEP</i> MIP 6-Minute distance walk SGRQ COPD assessment test European Quality of Life Test HADS London Chest Activity of Daily Living scale Medical Research Council Dyspnea Questionnaire
	Skingley et al, 2014 <sup>9</sup>	MM	97	54	Voice teachers trained by authors	<b>Spirometry</b> <b>FEV<sub>1</sub> (<math>P = 0.006</math>)</b> <b>FVC (<math>P = 0.034</math>)</b> <b>SGRQ (<math>P = 0.024</math>)</b> MRC Dyspnea Scale European Quality of Life-5D York SF-12 Open-ended questionnaire
	Canga et al, 2015 <sup>10</sup>	RCT	68	4.5	8 music therapists	<b>Beck Depression Inventory (<math>P = 0.007</math>)</b> <b>Chronic Respiratory Questionnaire Self-Reported Dyspnea (<math>P = 0.01</math>)</b> <b>Dyspnea visual analog scale (<math>P &lt; 0.001</math>)</b>
Asthma	Eley and Gorman, 2010 <sup>11</sup>	PS	33	26	Singer who was a staff at the medical center	Spirometry <i>Peak expiratory flow rate</i> Open-ended questionnaire
	Wade, 2002 <sup>12</sup>	TSE	9	4	Not reported	<i>Peak expiratory flow rate</i> Present mood evaluation form

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