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Teaching Singers with Emphysema and Other Pulmonary Diseases

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Millions of Americans suffer from emphysema. With such high numbers, it is likely that teachers who work with adult voices will encounter students whose abilities are impacted by this disease. Thus, instructors will benefit from a basic understanding of emphysema, its effects on the process of singing, and specific approaches that can benefit singers with this disease. It is also helpful for singing teachers to understand medical treatment for emphysema, including its limitations and potential complications.

CASE REPORT

A case example helps illustrate the kinds of challenges encountered by singers with emphysema, and by their teachers. A retired cardiologist in his late seventies, "Jim" suffers from emphysema. Most commonly understood as a smoker's disease, Jim had, in fact, smoked heavily "back before we knew it was bad for you." At the time he began voice instruction, Jim had not had a cigarette for decades. He had no aspirations to begin a professional singing career, but he did enjoy singing in his church choir and frequently arranged gatherings among his friends to sing their favorite old hymns. In coming to the voice studio, he hoped to improve his technical singing and musicianship—in short, to make the whole of his participation in music even more enjoyable. These were reasonable expectations, made significantly more challenging because of the unique situation he faced.

In Jim's case, emphysema continues to take its physical toll, although he has managed the condition for years. Its most obvious symptoms were observable immediately in his singing: frequent shortness of breath, wheezing, and seemingly unprovoked coughing spells. During the most humid summer days, his breathing was even more labored, and he often chose to sit during lessons. His ability to sustain notes or phrases of extended duration was compromised as, to his own frustration, he found himself taking quick, interruptive catch-breaths during lines of continuous text or in the middle of words. Often, this "hiccough" breathing would lead to a coughing spell, after which, depending

on the force and duration of the coughs, he would have noticeable difficulty ascending in the register, and his voice would become husky.

In Jim's efforts to sing, he often would find himself caught in a cycle of hyperfunction. As his voice began to fatigue and diminish in range, he would work harder by engaging unnecessary muscles, requiring more physical effort and causing his already labored breathing to become even more difficult. These tensions frequently reappeared later in situations not brought about by vocal fatigue, likely as a result of muscle memory.

THE FACTS ABOUT EMPHYSEMA

Emphysema is one of the most common forms of Chronic Obstructive Pulmonary Disease (COPD). According to the American Lung Association, COPD develops slowly and may not present obvious symptoms until middle age. Most patients suffering from COPD are at least forty-five years old and have smoked a pack of cigarettes a day for ten years or more.[1] Although some eighty to ninety percent of COPD cases are caused by cigarette smoking, other risk factors include cigar and pipe smoking, exposure to secondhand smoke or other air pollutants, as well as heredity and a history of childhood respiratory infections.[2]

By affecting the alveoli and/or bronchi, COPD can cause the lungs to lose elasticity. The enlarged lungs then trap "stale" air, interfering with their ability to exchange with fresh air and deliver sufficient oxygen to the blood.[3] Symptoms of this disease can include a frequent, persistent, often phlegm-producing cough, as well as shortness of breath during everyday physical activity. Often by the time these symptoms appear, emphysema sufferers already have lost fifty to seventy percent of their lung function.[4]

As stated, COPD is a chronic disease. There is no known cure. According to the Centers for Disease Control, it is one of the leading causes of death, illness, and disability in the United States. In 2000, COPD resulted in 119,000 deaths, 726,000 hospitalizations, and 1.5 million visits to hospital emergency departments. It also accounted for another eight million cases of hospital outpatient treatment or treatment by personal physicians.[5] As many as twenty-four million Americans may be affected by the disease.[6]

THE EFFECTS OF EMPHYSEMA ON VOICE PRODUCTION

The National Emphysema Foundation explains that lungs weakened by smoking will overinflate and push downward, creating pressure on the diaphragm and interfering with its function. This forces emphysema sufferers to expend more energy and simply work harder to breathe.[7] Alexander Scott describes the challenge: "Not only must the COPD diaphragm contract more forcefully against the increased resistance of narrowed airways, but it must do so from the mechanical disadvantage of a relatively ineffective flattened position."[8]

The tendency to increase muscular action as a result of emphysema also is evident in a closely related disease that more singers experience: asthma. Emphysema may be similar to asthma in both symptoms and manifestations, although the mechanisms causing dysfunction vary substantially, as do treatments. In a discussion on asthmatic vocalists, Spiegel, Sataloff, Cohn, and Hawkshaw note,

> The singer may become short of breath, or may simply note voice fatigue, decreased range, and impaired volume control. As in other conditions that impair the power source of the voice, compensatory efforts are common, including increased jaw tension, tongue retraction, and strap muscle hyperfunction.[9]

It is common for students with asthma to continue compensatory habits such as these, particularly excessive tension in the tongue and neck, even when not responding to specific symptoms.[10]

TREATMENT AND THE ROLE OF THE VOICE INSTRUCTOR

Not surprisingly, the best way to prevent emphysema is to avoid smoking. Even after its diagnosis, eliminating a smoking habit can halt or at least slow the progression of the disease.

Medications also may be used to treat emphysema and can range from inhaled bronchodialators (e.g., Albuterol) to inhaled steroids (e.g., Beclovent, Flovent), to antibiotics and diuretics. As with many medications, there is a possibility of side effects, which may affect the voice adversely. The most common of these are coughing, hoarseness, or dryness of the mouth and throat.[11] Hydration and cough suppressants can "reduce laryn-

geal trauma associated with coughing unless the pulmonary condition and need to clear secretions militate against the use of antitussives."[12] The use of inhaled medication to treat pulmonary diseases is common but can also negatively impact the voice over the long term. Inhaled steroids have been associated with laryngeal candida (yeast) infections, and with muscle wasting that can cause breathiness, vocal weakness, and other voice changes. Therefore, as Cohn states,

> alterations in the treatment regimen must be made to avoid laryngeal injury. Although such changes may be subtle and unimportant to the average individual, to the professional singer, they have at least the theoretical potential to produce a significant change in tonal quality.[13]

Certainly, the diagnosis of emphysema and the resulting prescription of treatment should be undertaken only by medical professionals. However, voice teachers are in a unique position to address this condition, as well. Instructors have the benefit of hearing their students' voices repeatedly over extended periods of time. In the face of observed symptoms, instructors may need to urge students to seek the advice of a physician. It should be noted, however, that those who suffer from pulmonary diseases sometimes will not exhibit obvious signs of their ailment. In the case of asthma, for instance, in the serious singer, it "may present as vocal fatigue, voice strain, and limited range, with none of the typical manifestations of wheeze and shortness of breath."[14] Therefore, instructors must be prepared to look beyond the immediately recognizable manifestations of the disease. Nevertheless, encouraging a student with symptoms of emphysema to see a doctor may be a life-saving action. "When we think about the huge economical and human cost of pulmonary emphysema, early diagnosis of the disease is clearly the only effective way for changing its fatal progressive course."[15]

Voice instructors also would do well to realize that even adult students may not fully appreciate the risks of smoking.[16] Moreover, some students may not be forthcoming about a smoking habit out of embarrassment or a fear of confronting the issue. This topic must be handled, therefore, with sensitivity and concern. While only some ten to fifteen percent of all smokers develop incapacitating emphysema,[17] voice teachers should continue to emphasize the risks of smoking to a student's overall physical and vocal health.

Once diagnosed, teachers are responsible for understanding emphysema well enough that their efforts in the voice studio will not conflict with medically prescribed rehabilitative efforts. In addressing resulting muscular tension, for instance, instructors may need to help students continue to locate what Caldwell and Wall call the "baseline state of relaxation" in order to avoid the unconscious involvement of compensatory muscles.[18] Teachers should also be familiar with medical treatments for emphysema and be on the alert for medication side effects that may hinder vocal progress.

The careful choice of appropriate repertoire also can reduce significantly the manifestation of symptoms. In the case of Jim, his most successful singing was accomplished through slow, lyric songs whose relaxed pace encouraged freedom and release of tension. When he was able adequately and slowly to prepare his inhalation, he maintained a sense of ease and release in his singing. By contrast, upbeat songs, particularly those with a march-like, staccato character, encouraged erratic singing and forced the need for quick breaths, which often induced coughing and increased muscular tension. Jim's assigned repertoire, therefore, was designed as much as possible to facilitate his ease of production as well as the steady use of breath that slower, more lyric songs encouraged in his voice.

CONCLUSION

While relatively rare among professional classical singers, emphysema is likely to affect a substantial number of older beginning and amateur vocalists, as well as a surprising number of professionals. It may also be found in older premier pop singers who are more likely than classical singers to smoke. In the case of Jim, his struggle with emphysema was ever present, particularly at the end of every lesson when he asked to sing his favorite hymn, "Precious Lord, take my hand." As he sang, Jim modeled an inspiring enthusiasm as well as a commitment to learning and overcoming difficulties—"through the storm and through the night." The more voice instructors understand the symptoms and management of emphysema, the better they will be able to assist students like Jim in dealing with its ill effects, so that they

may continue to enjoy the process of singing. It is essential for singing teachers to educate themselves about emphysema, as well as other respiratory impairments such as asthma, and to establish close working relationships (especially open words of communications) with physicians and other healthcare providers who care for their students. The more teachers become an integral component of the healthcare team managing these patients, the better it will be for their students; and the knowledge gained in working with such challenging students often proves valuable not only for them, but for other students, as well.

NOTES

1. American Lung Association; available from http://www.lungusa.org/site/apps/s/content.asp?c=dvLUK9O0E&b=34706&ct=66951; Internet; accessed 26 January 2006.
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11. Cheshire Medical Center, Dartmouth-Hitchcock Keene; available from http://www.cheshire-med.com/programs/pulrehab/rehman/PulmonaryMedications.html; Internet; accessed 26 January 2006.
12. Spiegel, Sataloff, Cohn, and Hawkshaw, 156.
13. John R. Cohn, MD, "Asthma and the Serious Singer," *Journal of Singing* 54, no. 3 (January/February 1998): 52.
14. Ibid., 51.
15. Jaime W. Fidalgo-Garrido and José L. Martinez-Carrasco, "Early Diagnosis of Pulmonary Emphysema in Smokers," in George Weinbaum, Ralph E. Giles, and Robert D. Krell, eds., *Pulmonary Emphysema: The Rationale for Therapeutic Intervention (Annals of the New York Academy of Sciences, Volume 624)* (New York: The New York Academy of Sciences, 1991), 364.
16. A good article to share with students: Joseph R. Anticaglia, MD, Mary Hawkshaw, RN, BSN, Robert Thayer Sataloff, MD, "The Effects of Smoking on Voice Performance," *Journal of Singing* 61, no. 2 (November/December 2004): 167–171.
17. Fidalgo-Garrido and Martinez-Carrasco, 362.
18. Caldwell and Wall, 113.

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A frequent recitalist, Manternach has performed at colleges, universities, and arts series across the country. He has been published in *Classical Singer* magazine. A native of Iowa, he taught studio voice and related courses at the University of Notre Dame, Indiana University South Bend, and Holy Cross College. Manternach currently serves as Director of Vocal/Choral Activities at Juan Diego Catholic High School near Salt Lake City. He can be reached at bmantern@indiana.edu.

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