

2016

## Vocal Disorders: Evaluation, Treatment, and Maintaining a Healthy Voice

Danielle Kluver

*University of Nebraska at Kearney*

Follow this and additional works at: <https://openspaces.unk.edu/undergraduate-research-journal>



Part of the [Music Commons](#)

---

### Recommended Citation

Kluver, Danielle (2016) "Vocal Disorders: Evaluation, Treatment, and Maintaining a Healthy Voice," *Undergraduate Research Journal*: Vol. 20 , Article 6.

Available at: <https://openspaces.unk.edu/undergraduate-research-journal/vol20/iss1/6>

This Article is brought to you for free and open access by the Office of Undergraduate Research & Creative Activity at OpenSPACES@UNK: Scholarship, Preservation, and Creative Endeavors. It has been accepted for inclusion in Undergraduate Research Journal by an authorized editor of OpenSPACES@UNK: Scholarship, Preservation, and Creative Endeavors. For more information, please contact [weissell@unk.edu](mailto:weissell@unk.edu).

# **Vocal Disorders: Evaluation, Treatment, and Maintaining a Healthy Voice**

*Danielle Kluver*

Typically, vocal inefficiencies can be diagnosed and cared for by a singer's voice teacher. Breathing, alignment, and resonance issues are often normal, and almost every singer will face at least one type of vocal inefficiency throughout the course of vocal study. However, when a singer's vocal tract becomes disordered, proper phonation becomes difficult, even with a voice teacher's guidance. Vocal disorders differ from inefficiencies because they must be treated under the supervision of a medical professional. Because a singer's voice teacher is the primary caretaker of their students' voices, it is the voice teacher's responsibility to have an understanding of vocal disorders, and be able to refer a singer to the specialists that can aid in treatment, should a disorder arise. The voice teacher needs to be an integral member of this voice care team, and may assist the singer in successfully completing a voice therapy plan, if the vocal disorder requires one.

## **THE VOICE CARE TEAM**

Finding a voice care team is an essential part of maintaining a healthy voice. According to the article "Finding a Voice Doctor and Voice Care Team", published in 2008 in the NATS Journal of Singing, the voice teacher is the primary caretaker of their students' voices: "An astute teacher...is often the first person to detect a vocal problem and is usually regarded by the student as the source of all knowledge about anything vocal. This great responsibility carries with it an obligation to know as much as possible about vocal health and care" (Heman-Ackah et al. 583).

The responsibility of assembling a students' voice care team will not always fall on the voice teacher. However, it is important for all voice teachers to understand what goes in to compiling such a team of physicians and specialists, in the event that a student would need to be treated by a voice care team.

According to the article "How Do I Maintain Longevity of My Voice?" published in 2008 in the NATS Journal of Singing, the interdisciplinary collaboration among voice professionals has "revolutionized voice care since the early 1980s" (Heman-Ackah et al. 467). A voice care team is comprised of several key members. Generally, this team is under the direction of an otolaryngologist or a laryngologist, who has medical training and certification in the diagnosis and treatment of concerns relating to the head and neck, ears, nose, and throat (Heman-Ackah et al. 2008, 584). Other members of the voice care can include: the speech-language pathologist; a singing voice specialist; a voice scientist; psychological professionals; a nurse or physician's assistant; and other consulting physicians or specialists (Heman-Ackah et al. 2008, 583). Each member of the voice care team offers specialized techniques to solve vocal health issues. While the otolaryngologist or laryngologist would be focused on the medical aspects of the disorder, the speech and language pathologist would lead the speech therapy aspects of treatment. The singing voice specialist may be the singer's voice teacher in certain situations. However, the role

of the singing voice specialist may be provided by a professional that has more knowledge and training of the anatomy and physiology of the voice. In any situation, the patient's voice teacher must be an integral part of any treatment plan, and understand the limitations and expectations set by the other members of the care team. When a voice teacher is actively involved in a singer's treatment plan, the probability of success will be increased, because each person working with the singer's voice will be working towards the same goals.

While some singers may choose to solely seek advice from a laryngologist, Heman-Ackah and colleagues (2008) note that "most of the time, the entire voice team plays an integral role in the diagnosis of the voice problem and in the rehabilitation of the voice, and it is important for patients to follow through on all aspects of therapy" (590). Singers must also be aware of the risks that come with any sort of vocal rehabilitation program. Even if every aspect of therapy, surgery, and rehabilitation is done perfectly, bad outcomes exist. It is important for a patient to understand all risks of lasting damage that may occur throughout the course of treatment and rehabilitation, and prepare themselves mentally and emotionally.

### **CREATING A TREATMENT PLAN**

Author Karen Wicklund (2010) describes the creation of a singing voice therapy plan in her book *Singing Voice Rehabilitation: A Guide for the Voice Teacher and Speech-Language Pathologist*. Wicklund (2010) notes that once the singer has been referred to and diagnosed by an otolaryngologist with a voice disorder, they are evaluated by a speech-language pathologist (SLP) and a singing voice specialist (SVS). This evaluation includes an interview process, in which the SLP and SVS obtain relevant information, including demographics, referring source, medical conditions, a list of current medications, symptoms, types of voice use, and information about the beginning of the vocal problem (79). The interview may also include questions about vocal hygiene habits, past surgeries, history of smoking, and caffeine/alcohol use. After the interview process is completed, the next step is to evaluate vocal restrictions. Wicklund (2010) discusses the acronym PIRDQ in her book, which "...refers to Pitch/frequency, Intensity/loudness, Resonance, Duration, and Quality – vocal parameters that need to be evaluated both before (baseline) and after the vocal fold problems" (79). According to Wicklund (2010), the Speech and Language Pathologist would evaluate the pitch-frequency, intensity (decibel), resonance, duration, and quality of the patient's voice, while the Singing Voice Specialist would evaluate pitch, intensity (loudness), resonance, duration, and quality of singing (81-90). By utilizing this type of evaluation, the care team is able to create goals for the patient.

### **TESTING PROCEDURES**

In certain vocal disorder cases, laboratory examination procedures must be utilized, in order to evaluate the status of the laryngeal mechanism. In the book *Vocal Pathologies: Diagnosis, Treatment, and Case Studies* written by James Paul Dworkin and Robert J. Meleca, these processes are said to "yield important diagnostic information regarding these integrated systems" (1996, p. 41).

The first type of examination that can be performed is the creation of voice recording and an analysis of the samples collected, to check for various acoustic parameters (Dworkin and

Meleca 1996, 42). This type of examination may be primarily done by a Speech and Language Pathologist, or a Singing Voice Specialist. The evaluation of the recordings that are produced is valuable to the entire voice care team, because each member is able to see the baseline of vocal production.

Videostroboscopy is another useful tool that can be employed to examine a patient's vocal folds. By using a "rigid endoscope interfaced with a videostroboscopy system", the laryngologist is able to visually examine the larynx, and make notes about its appearance and ability to function (Dworkin and Meleca 1996, 53). This type of test offers a medical analysis of the patient, as well as a visual analysis, which is supplementary to the evaluation given by the SLP or SVS.

### **PREVENTING VOCAL INJURY/REINJURY**

In order to maintain a healthy vocal tract, singers must practice healthy habits. Even after undergoing treatment and rehabilitation for a vocal injury, it is imperative for a singer to fully understand how to prevent reinjury from occurring. According to Wicklund (2010): "Effective voice therapy should habituate new, more effective speech and singing habits, due to the extended length (8-10 weeks) of the therapy plan. Therefore, vocal hygiene information can be presented and reinforced at each session as part of the singer's treatment plan" (145).

Vocal hygiene is the increase or decrease of habits and behaviors in order to maintain a healthy voice. The implementation and continuation of healthy vocal habits is key to the success of any treatment plan, and preventing vocal reinjury. Wicklund (2010) offers a list of vocal hygiene strategies for singers, which includes: avoiding excessive use of a loud voice/whispering; avoiding smoke; limiting alcoholic and caffeinated beverages; using a humidifier; managing food and environmental allergies (95-96). When vocal hygiene is practiced, a singer is more likely to maintain a healthy voice, and decrease the chances of being diagnosed with a vocal disorder, or reinjuring the voice after a treatment and rehabilitation plan has ended.

Because it is vital for singers to practice healthy vocal hygiene habits, voice therapy will include education and implementation of habits that will be beneficial for the patient, in addition to the evaluation and testing that must be completed. With the utilization of a treatment plan that evaluates, diagnoses, treats, and prevents, the voice therapy team is able to provide the patient with the most well-rounded, individualized care.

Although the voice therapy team creates an individual therapy plan based on the patient's needs, evaluation/testing results, and background, there are standard treatment plans that have been proven to be most successful when treating specific vocal disorders. When each member of the voice care team, including the voice teacher, has knowledge of these standard plans, the team can work as a collective unit to aid the patient in the most effective, successful manner.

### **STANDARD TREATMENT PLAN: VOCAL NODULES**

Wicklund (2010) states: "Nodules are located at the juncture of the anterior one-third and middle one-third of the folds, as this is the point of greatest impact during phonation" (44). Nodules structurally change the vocal fold, and they are caused by any vocally abusive behavior,

also known as phonotrauma. Phonotrauma can include behaviors such as yelling, screaming, hard glottal attacks, and throat clearing. Nodules occur bilaterally, and are callous-like benign lesions (Wicklund 2010, 84). This type of lesion starts out soft, but with repeated vocal abuse, it hardens and becomes more difficult to treat. The symptoms of vocal nodules include an incomplete closure of the glottis, breathiness, and pitch reduction, which is caused by the increase in vocal fold mass nodules create (Wicklund 2010, 84).

Treating vocal nodules generally requires 6-8 weeks of vocal therapy. Throughout the process of treatment, the voice therapy team will aid the patient in identifying abusive vocal behaviors, teach healthy vocal habits, work towards retraining the laryngeal muscles, and teach vocal hygiene practices. If necessary, the team will also work with reflux management, which can be a factor in contracting vocal nodules.

#### **STANDARD TREATMENT PLAN: VOCAL POLYPS**

Polyps are described by Wicklund (2010) as being "...bilateral on unilateral...Because they are sometimes pliable and soft, these types of unilateral polyps do not always irritate tissues on the opposite fold. Usually fluid-filled, a polyp forms from vocal fold hyperfunction, in combination with other factors" (46). Authors Rex J. Prater and Roger W. Swift discuss vocal polyps in their book *Manual of Voice Therapy*, published in 1984. Similarly to vocal nodules, vocal polyps are caused by phonotrauma, or they can be caused by a reaction to allergies, a thyroid imbalance, an upper respiratory tract infection, or the excessive use of alcohol or cigarettes (Prater and Swift 1984, 86). The symptoms of vocal polyps include sudden voice breaks, hoarse and breathy vocal production, and diplophonia, or "...the audible perception of two distinct pitches during phonation" (Prater and Swift 1984, 86). Surgical removal is often the best treatment for vocal polyps, because if they become too enlarged, airway obstruction can occur. A voice therapy treatment plan may be utilized in the case of smaller, less predominant polyps, but if ineffective, surgery must be completed (Prater and Swift 1984, 86). If voice therapy is utilized, the complete plan usually lasts two to six months. Voice therapy is also an option following surgery to remove a vocal polyp. The focus of voice therapy is to increase vocal rest, implement vocal hygiene, eliminate hard glottal attacks, increase breath support while singing, and reduce overall voice use (Prater and Swift 1984, 87). While an otolaryngologist would perform the surgical removal of a polyp, and lead any surgical follow-up, a speech and language professional and singing voice specialist would lead the patient's voice therapy. The student's voice teacher would need to be involved in the treatment plan, to ensure that adequate vocal rest is practiced.

#### **STANDARD TREATMENT PLAN: MUTATIONAL FALSETTO**

Mutational falsetto, also known as puberphonia, is described in Rex J. Prater and Roger W. Swift's book *Voice Therapy*: "Mutational falsetto is the persistence of a higher-pitched voice into adulthood. The larynx is perfectly capable of producing the normal lower pitch of adult males" (1984, 218). Mutational falsetto is only considered a voice use disorder when falsetto is used as the principal method of phonation in a person's speech (Wicklund 2010, 50). The symptoms of this voice use disorder include a high-pitched, breathy, hoarse vocal production.

Prater and Swift (1984) state: “The higher-pitched voice is produced by a larynx that is elevated high in the neck and tilted downward...As the individual attempts phonation, the arytenoids adduct so tightly that the posterior portion of the vocal folds is prevented from vibrating, and the thyroarytenoid muscle fails to contract” (218).

Endocrine disorders, hearing loss, or neurologic diseases that cause vocal fold weakness may cause a singer to possess mutational falsetto. Fortunately, the majority of patients with mutational falsetto can be treated within several therapy sessions, because the larynx is structurally normal. There are several basic exercises that a speech therapist, or singing voice therapist, can utilize in order to aid the patient in a “normal” type of voice production. These exercises include: Clearing the throat, grunting, and vocal fry. After these exercises have been properly executed, the patient should attempt to produce vowels, using these types of phonation as the onset of the vowel (Prater and Swift 1984, 219). The prognosis for recovering the voice is exceptional for patients with mutational falsetto, and the voice teacher can be an integral part of this treatment plan, when there are no accompanying medical issues present.

#### **STANDARD TREATMENT PLAN: CHRONIC LARYNGITIS**

Wicklund (2010) describes chronic (or traumatic) laryngitis as being “...caused by cheering, yelling, and/or screaming...Any situation that requires a repeated, excessively forceful loud vocal volume from collision of the vocal folds may produce traumatic laryngitis” (49). Chronic laryngitis can also be caused by severe coughing, smoking, and air pollution. This type of laryngitis is not to be confused with acute laryngitis, which is caused by an infection within the larynx (Prater and Swift 1984, 78). Symptoms of laryngitis include edema (an accumulation of fluid), vocal fatigue, hoarseness, and lowered vocal pitch. According to Prater and Swift (1984): “[In patients with laryngitis] the vocal folds have lost their usual pearly sheen and are reddened and irregularly thickened. Small, dilated blood vessels can be seen on the superior surface of the folds. The vocal fold margins, which normally appear to have sharp edges during phonation, are more rounded” (9).

Wicklund (2010) states that treatment of chronic laryngitis includes voice therapy and rest. Cough suppressants and other medications may be used in order to decrease inflammation, if required (50). This type of therapy plan can be led by a singing voice specialist, or the singer’s voice teacher, as long as no medications are needed throughout treatment.

#### **STANDARD TREATMENT PLAN: STRIDENCY**

Stridency is defined by authors Prater and Swift (1984) as being caused by changes in the size and resiliency of the pharynx, which affect the characteristics of resonance. This can result in a “harsh, carnival barker-like vocal resonance called stridency” (244). When stridency is present in the voice, the larynx is elevated, causing the pharynx to shorten. Symptoms of stridency include a “tinny” or “brassy” sound, or a voice that emphasizes the high frequency auditory components. (Prater and Swift 1984, 244). Stridency is a vocal inefficiency that can be properly treated by a voice teacher, with the guidance and consultation of a laryngologist, to confirm that there are no other vocal disorders accompanying it.

Stridency would be considered a *hyperfunctional phonation* vocal inefficiency, because it is caused by tension within the vocal folds themselves. Vocal pedagogue and author James C. McKinney (1982) lays out a treatment plan for *hyperfunctional phonation* inefficiencies in his book *The Diagnosis and Correction of Vocal Faults: A Manual for Teachers of Singing and Choir Directors*, which can be easily conducted by a voice teacher. Within his treatment plan, McKinney (1982) emphasizes the use of relaxation methods, beginning with the singer's body alignment, and working towards the relaxation of the laryngeal mechanism (92). McKinney (1982) suggested exercises such as rolling the head, moving the shoulders until they feel free, and generally loosening and toning the muscles (92). After this is accomplished, the teacher can move on to ensure that the student is breathing and supporting their phonation properly. McKinney (1982) states: "Check for expanding around the middle, setting up suspension, and starting the sound without pulling in strongly on the abdomen" (92). Prater and Swift (1984) suggest using the chewing technique or the yawn technique, which establishes a relaxed pharynx by loosening the vocal tract (244-245).

Establishing relaxation techniques to lower the position of the larynx will promote the treatment of stridency. If a singer is able to successfully implement the relaxation of the larynx, no further medical treatment will be required to repair this vocal inefficiency. It is still important for the singer to consult with an otolaryngologist or laryngologist, because stridency can be considered a vocally abusive behavior that can be attributed to causing another type of vocal disorder.

### **THE VOICE TEACHER: INVOLVEMENT THROUGHOUT TREATMENT**

The voice teacher can be an invaluable member of the voice care team throughout the course of a patient's treatment for a vocal disorder, whether or not they are considered the singing voice specialist on the team. According to Wicklund (2010), after a singer has mastered the basic therapeutic exercises that are offered at the beginning of a treatment program, songs can be added to the daily practice for the recovering singer (111). The SVS or voice teacher must be aware, however, that the singer's voice may not be the same as when it is healthy, and be reassuring and accepting of whatever vocal variation the singer offers throughout the process (Wicklund 2010, 111-112).

Wicklund (2010) offers a number of suggestions for therapeutic songs in her book, which include both classical and musical theater song literature. Wicklund (2010) also gives a list of criteria for the selection of therapeutic song literature, which includes a song that has: no more than a one octave range; a vocal line that moves in steps or small skips; offers small changes in dynamic (if any); contains a basic vocal technique (staccato, flexibility, endurance, vowel purity, etc.) (112). Songs that are offered as examples include Giulio Caccini's "Amarilli", Tommaso Giordani's "Caro mio ben", and Rodgers and Hammerstein's "Do I love you because you're beautiful?" (Wicklund 2010, 113-131).

The utilization of therapeutic songs throughout the course of a singer's vocal therapy treatment can be a highly beneficial tool for voice teachers. Paired with an understanding of the

singer's vocal limitations, and a reassuring and accepting nature, the voice teacher can be instrumental in successfully treating a singer for a voice disorder.

### **REHABILITATING A SINGER: AN INTERDISCIPLINARY PROCESS**

Successfully treating a singer for a vocal disorder truly requires the knowledge and expertise that only a team of medical and voice professionals are able to offer. While a voice teacher can effectively refer a singer to medical professionals and aid in the treatment process, a laryngologist is the sole leader of medically treating vocal disorders. Speech and Language Pathologists and Singing Voice Specialists also offer invaluable knowledge to a vocal disorder treatment plan beginning at the initial evaluation phase. Standard treatment plans are often the most successful course of treatment for vocal disorders, but with a care team, the patient is able to receive individualized treatment throughout the process. When voice teachers have knowledge of voice disorders, voice care team treatment plans, and vocal hygiene, they can truly be the caretaker of their singer's voices, and properly aid in the care and protection of every voice they work with.

### **BIBLIOGRAPHY**

- Dworkin, James Paul, and Robert J. Meleca. *Vocal Pathologies: Diagnosis, Treatment, and Case Studies*. San Diego, Calif.: Singular Pub. Group, 1996.
- Heman-Ackah, Yolanda D., Robert T. Sataloff, Mary J. Hawkshaw, and Venu Divi. "How Do I Maintain Longevity of My Voice?" *Journal of Singing* 64, no. 4 (2008): 467-72.
- Heman-Ackah, Yolanda D., Robert T. Sataloff, Mary J. Hawkshaw, and Venu Divi. "Consulting a Voice Doctor: When?" *Journal of Singing* 65, no. 1 (2008): 53-58.
- McKinney, James C. *The Diagnosis and Correction of Vocal Faults*. Nashville, TN: Broadman Press, 1982.
- Prater, Rex J., and Roger W. Swift. *Manual of Voice Therapy*. Boston: Little, Brown, 1984.
- Wicklund, Karen. *Singing Voice Rehabilitation: A Guide for the Voice Teacher and Speech-language Pathologist*. Clifton Park, NY: Delmar, 2010.