



### **Teacher Self-Preservation: Tips for Preserving your Voice**

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We have all heard the traditional vocal hygiene recommendations: hydrate (drink water, avoid caffeine and alcohol), don't yell or scream, get plenty of rest, don't sing when you have a cold, etc. Some of those suggestions might help you, others might not, and some might be beyond your control. We would like to offer other ideas for maintaining a healthy voice—suggestions that go beyond traditional vocal hygiene recommendations.

Some of these strategies refer to the speaking voice and the singing voice since you are, after all, professional speakers in addition to being singers. Teachers are well known for having voice problems more frequently than people in other occupations.<sup>1</sup> In one study, more than 20% of 242 teachers reported having missed work because of their voice.<sup>2</sup> The current article will describe “semi-occluded vocal tract” techniques and encourage you to think about vocal exercise instead of rest (sometimes), minimizing the voice patterns that cause the most tissue trauma, recognizing the effects of common medications on voice, and managing reflux.

#### **I. Semi-occluded Vocal Tracts**

A semi-occlusion refers to narrowing the vocal tract at any point. Semi-occluded techniques build up air pressure in the vocal tract in a way that helps the vocal folds vibrate more

easily. They also help the voice to sound resonant (i.e., more “ring”) and louder while putting the brakes on vocal fold collision (Titze & Story, 1997; Story, Laukkanen, & Titze, 2000; Titze, 2006). The result? Your voice will carry better, and you should experience less vocal fatigue.

Many of the sounds we use for singing and speaking voice warm-ups take advantage of semi-occlusions. We can use lip and tongue trills, humming on “m,” “n,” or “ng.” We can sustain “oo,” the bilabial fricative /β/ (humming through a very narrow opening between the lips) and other voiced fricatives such as “v,” “z,” or “zh.” When sustaining these sounds, focus on feeling vibration in the mouth (lips or behind the upper teeth) and a feeling of ease or comfort in the throat. You should then work toward the same feeling when you repeat syllables (e.g., “nee nee nee nee nee”), words (e.g., “mean, moon, mine, known”), and phrases (e.g., “yummy melons and marmalade”). Planning a little time in the morning or before a class or rehearsal to warm up your speaking voice in this way should help prevent voice fatigue.

Another type of warm-up that takes advantage of airway mechanics involves using straws. Simply place a straw in your mouth and perform easy sigh glides or basic vocal exercises throughout the entire range. Make sure not to let any air escape at the mouth or through your nose. It should feel easy in your throat. If the straw causes fatigue, try a different type of straw. Small diameter straws (cocktail straws) enhance the interaction more than large diameter straws, and you should experiment with straws of different diameters and lengths to find a starting place that allows you to experience easy voice production. Straws might have the added benefit of helping smooth out the passagio. For a short demonstration, see the You Tube video by voice scientist, Ingo Titze (<http://www.youtube.com/watch?v=asDg7T-WT-0>), or the video by speech-language pathologist, Tom Burke (<http://www.youtube.com/watch?v=FSqHThEY9M>).

Is there a role for cool down? This is not clear in general exercise science and even less understood in voice production, yet some speech-language pathologists encourage a cool down after singing to promote healing (see topic II) and reduce any

residual tension in the tongue base and jaw. Sapienza and Hoffman Ruddy recommend engaged gentle humming in a downward glide through a comfortable range followed by descending scales with /blah blah blah blah blah/, allowing the jaw to release any tension and the tongue to extend over the lower lip.<sup>3</sup>

## II. Voice Rest Versus Exercise

Many of us have been taught to rest our voices when we have a respiratory illness, have had heavy voice use, or are fatigued. Voice rest might mean complete rest or conservation (i.e., decreasing the overall amount of talking and using a quiet voice when one must talk). Though conservation is not disputed for severe injuries, there is a growing interest in determining whether gentle, resonant exercise might be more beneficial to healing than vocal rest.

Researchers have found that teachers with disordered voices improved more when they performed vocal function exercises than when they only practiced vocal hygiene recommendations (e.g., rest, eating a healthy diet, avoiding coughing/throat clearing, loud voice, low pitch and monotone talking, holding ones breath and hard glottal onsets, smoking, alcohol, caffeine).<sup>4</sup> They improved more when using amplification than when following vocal hygiene recommendations.<sup>5</sup>

In another study, practicing good vocal hygiene was sufficient to prevent voice problems during student teaching for people with few voice concerns, but “resonant voice” exercises (e.g., humming while perceiving vibration in the lips and ease in the throat) were necessary to prevent increased handicap in those student teachers who had some difficulties at the outset.<sup>6</sup>

While methodology has been challenging and results mixed, preliminary reports show that resonant voice exercises may decrease vocal fold inflammation after heavy voice use or injury.<sup>7</sup> If future studies provide additional evidence that this is the case, there will likely be caveats regarding amount and type of exercise required for benefit and not harm.

What do those studies mean for you? When you are in the position of having to practice, teach, or direct and your voice is not quite its best, it is important to warm up and cool down gently and thoroughly. Allow others to demonstrate when possible, and use semi-occlusions in demonstrations you must give (when possible). If you have amplification devices available, this would be a time to use them for talking (see topic III). If you are having difficulty, meet with a speech-language pathologist specializing in voice and ask about exercise versus

rest for your particular situation.

## III. Minimizing Patterns that Cause the Most Tissue Trauma

Recall that vocal pitch (fundamental frequency or F0) corresponds to the number of times vocal folds vibrate per second so that using a higher pitch means the vocal folds are colliding more times per second. A louder voice (higher dB SPL) typically means higher-force collisions and vibrational stress.<sup>8</sup> Both of these factors can lead to vocal fatigue and vocal fold damage. Teachers in general have been shown to have more vocalization time in a day than non-teachers, and female teachers in particular use a louder voice when teaching and tend to increase their pitch over the course of a day.<sup>9</sup>

These findings serve as a reminder to be aware of pitch and loudness during the speaking portion of teaching, directing, and interacting with others. One situation where it is hard to monitor your own loudness is when you are speaking over background noise. In your professional life, this might translate into not speaking or singing when the choir is speaking or singing. You will likely be louder than you think, and you can't listen critically to them when you are talking. Moreover, by speaking when students are also speaking, you give them permission to ignore you!

## IV. Effects of Common Medications on Voice

We take over-the-counter and prescription medications for many different conditions. Medications and herbal supplements can have a variety of side effects, some of which can affect the voice by causing dryness, irritation, decreased platelet function (which can increase susceptibility to a vocal fold hemorrhage), candida (yeast) overgrowth, cough, tremor, or gastroesophageal reflux.

You can check your medications against a list on the National Center for Voice and Speech's website ([www.ncvs.org](http://www.ncvs.org)). We have included a table below which is adapted from Titze and Verdolini Abbott.<sup>10</sup> It is important to note that the possible effects listed do not apply to every drug in that class and do not occur for all people using the drug. If you are using one of these medications and having difficulty with your voice, talk to your doctor about whether the medication might be contributing to your voice problem and whether there is a reasonable alternative for you to try.

<u>Herb/drug group</u>	<u>Possible effect on voice</u>
Antibiotics	Candida (thrush)
Antivirals	Edema (swelling), sore throat, dryness
Antihistamines	Dryness
Steroid nasal sprays	Throat irritation, dryness
Diuretics (drugs and herbs)	Dryness
Non-steroidal anti-inflammatory drugs (including ibuprofen and naproxen)	Decreased platelet function
Asthma inhalers	Candida (thrush)
Appetite suppressants	Dryness
Antidepressants	Dryness
ACE inhibitors	Cough

and avoiding fatty or greasy foods, chocolate, coffee, caffeine, carbonated beverages, alcohol, acidic foods, spicy foods, tobacco, and sedatives.

If you are having trouble with symptoms of reflux, talk to your doctor about whether the reflux symptoms might be affecting your voice. He or she might recommend a prescription or non-prescription medications to help manage your symptoms and control reflux.

When vocal fatigue or voice change is a problem, consider the strategies presented here: semi-occluded vocal tract techniques, daily warm-up before beginning your day, minimizing loud and higher pitch talking, and revisiting your medication list with your doctor. Also talk to your doctor about reflux symptoms. As always, visit an otolaryngologist and speech-language pathologist experienced in dealing with voice problems for specific diagnosis and recommendations.

## V. Managing Reflux

In a recent study of 76 healthy singing teachers at a NATS convention, laryngoscopic signs of reflux were identified in 72% of the participants.<sup>11</sup> Reflux occurs when stomach material moves into the esophagus and even other structures like the larynx. The refluxed material is often acidic and can damage the esophagus and the larynx.

Long reflux episodes where the material sits in the esophagus can cause heartburn, stomach pain, frequent belching and regurgitation. The tissue of the larynx is more fragile than the esophagus and can be damaged by short, fast episodes of reflux.

Reflux affecting the larynx is sometimes called laryngopharyngeal reflux (LPR) or extraesophageal reflux (EER). Symptoms can include hoarseness, a feeling of fullness or a lump in the throat, the need to clear your throat or cough all the time, and a hoarse voice in the morning or after a meal.

Treatment for reflux can include lifestyle changes such as postural modifications, diet modifications, and general health considerations. Staying upright is thought to help refluxed material clear faster, so recommendations might include elevating the head of your bed approximately six inches (a gradual incline from your waist to your head), waiting two-three hours after eating to lie down, and bending from your knees rather than your waist after a meal. Dietary modifications generally include eating smaller meals more frequently through the day,

## NOTES

- <sup>1</sup> N. Roy, et. al., “An evaluation of the effects of two treatment approaches for teachers with voice disorders: a prospective randomized trial,” *Journal of Speech, Language, Hearing Research* 44, (2001): 286-296 (outcomes study). *Journal of Speech, Language and Hearing Research* 45, 625-638; E. J. Hunter and I. R. Titze. “Variations in intensity, fundamental frequency, and voicing for teachers in occupational versus nonoccupational settings,” *Journal of Speech, Language, Hearing Research* 53 (2010): 862-875.
- <sup>2</sup> E. Smith et. al., “Frequency and effects of teachers’ voice problems,” *Journal of Voice* 11 (1997): 81-87.
- <sup>3</sup> C. Sapienza and Rubby B. Hoffman. *Voice Disorders*, 2nd Ed. (San Diego, CA: Plural Publishing, 2013): 314-316.
- <sup>4</sup> N. Roy, et. al. “An evaluation of the effects.”
- <sup>5</sup> N. Roy, et. al., “Voice amplification versus vocal hygiene instruction for teachers with voice disorders: a treatment” (2002).
- <sup>6</sup> C. Nanjundeswaran, et. al., “Preliminary data on prevention and treatment of voice problems in student teachers.” (2012).
- <sup>7</sup> R.C. Branski et. al., “Dynamic biomechanical strain inhibits IL-1β-induced inflammation in vocal fold fibroblasts,” *Journal of Voice* 21 (2007): 651-660; K. Verdolini Abbott et. al., (2012).
- <sup>8</sup> I.R. Titze and K. Verdolini Abbott, *Vocology: The Science and Practice of Voice Habilitation* (Salt Lake City, UT: National Center for Voice and Speech, 2012).
- <sup>9</sup> I. R. Titze, E. J. Hunter, and J.G. Švec, “Voicing and silence

periods in daily and weekly vocalizations of teachers,” *Journal of Acoustical Society of America* 121 (2007): 469-478; E. J. Hunter and I. R. Titze, “Variations in intensity.”

<sup>10</sup> I. R. Titze and K. Verdolini Abbott, *Vocology* (chapter 3).

<sup>11</sup> R. T. Sataloff, et. al., “Prevalence of abnormal laryngeal findings in healthy singing teachers” *Journal of Voice* 26 (2012): 577-583.

*the Learner*, Scott states, “When I attended school, the philosophy of education seemed focused primarily on educational processes: reading, writing and arithmetic . . . My perception is that today’s philosophy of education focuses primarily on intellectual performance: academics, achievement tests, and adequate yearly progress.” He goes on to discuss education in the late nineteenth and early twentieth century. There was a different focus, as you will see.

“The three H’s—heart, head, and hands—were a familiar concept to educators in the 1800s and early 1900s (33). His book also mentioned a few other education pioneers. In 1910, Chauncy Colegrove, Iowa State Teachers College, wrote: “We have now pointed out the aims of education in each of its three great divisions, the culture and training of the hand and the body, the head, and the heart. With these broad aims, all the work of the school should be in harmony” (113).

In 1908, Charles Oliver Hoyt wrote: “Harmony between the head, the heart, and the hand [must] be maintained. This gives a threefold division of . . . education” (p. 89). In our time, there has been a clear shift in our thinking about a well-rounded education in our public schools. The idea of trying to teach to someone’s “heart” would seem outside of the scope of what we feel a public school education should entail. Or is it?

With test scores being our main focus, one would ask if this approach is working. John Haittie, an Australian professor of education, set out to research what kind of teaching, teaching practices, and teachers have an impact on test scores. Or, in his words, “What kind of teaching, teaching practices, and teachers impact learning?”

In his book, *Visible Learning for Teachers—Maximizing the Impact on Learning*, Haittie documented his research on common educational practices such as homework, ability grouping, interventions, peer tutoring, Piagetian programs, cooperative learning, and simulations, etc. (266). He listed 150 influences or achievements. His book makes it very clear that teachers do have an impact on their students’ learning. While discussing the critical role of the teacher in education, he admonishes them to “know thy impact.” But he doesn’t stop there. He brings up the point that if we can truly make a difference in how much our students learn, where is the discussion about what we want our students do learn?

In the preface of his book, Haittie writes:

What is the nature of the learning that you wish to impact? My hope is that it is more than passing surface-level testing. It involves impacting a love of

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## Why Do They Sing? Students Speak Up

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(Used with permission of Illinois’ *Podium*, Winter 2015)

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“There is an artist imprisoned in each one of us.  
Let him loose.”

—Bertrand Russell

It is no secret that our schools are data-driven institutions. Presently, the data with which we are most concerned is the data we receive from standardized test scores. Hiring of personnel, budget decisions, and course offerings end up being tied to the outcomes of these tests.

Many schools have increased their students’ credit hours for graduation to include more required hours of the core subjects. If we are hoping to see our schools’ average test scores increase, it would seem a logical step to increase the students’ exposure to these subjects. Is there anything wrong with this approach? Are we getting the results we hoped for? Are there any drawbacks to this intense worry over standardized test scores?

At our “Welcome Back Teacher Institute Day,” our district hired a speaker named Darrell Scott. At the time of the meeting, I didn’t recognize the name. I will tell you more about him later in this article.

He began to talk about his vision for education. As he began speaking, he gave us a brief recap of educational philosophy for the past couple of hundred years. In his book, *Awaken*