



# Vocal Hygiene for the Educational Professional

Friday, April 9

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# Purpose of Today's Presentation

Prevalence of voice disorders in the teaching and educational profession

Examine 3 randomized control trials

Discuss most effective treatment methods and how we as SLP's can be advocates for teachers and their vocal health

Discuss how COVID-19 has played a role in decrease in vocal quality and health

Teacher tips and tricks to prevent vocal misuse

# Fast Facts

- ◇ The 3.3 million elementary and secondary school teachers in the U.S. can be classified as “heavy occupational voice users”
- ◇ 11-38% of teachers are experiencing a current voice problem
- ◇ Prevalence of having one occurrence of dysphonia during the life span: approx. 57.7% for teachers compared to 28.8% for nonteachers
- ◇ Music, performing arts, drama, PE and chemistry teachers appear to be disproportionally affected by voice problems
- ◇ According to the Voice Academy (sponsored by the National Center for Voice and Speech) teachers spend approximately 49.3 hours per week on teaching duties and produce 1,000,000 vocal fold vibratory cycles daily during a voicing period of 1.5 hours  
(<http://www.ncvs.org/ncvs/groups/occupational/status.html>)

# Teaching Demands and Harmful Vocal Practices

- ◆ Increased background noise in classrooms: Range from 50dB-80 dB depending on the setting. Standard acceptable dB is 35dB.
- ◆ Necessity to raise voice during teaching: on average to 9.1dB
- ◆ Necessity of speaking loudly for long periods of time
- ◆ Teachers oftentimes utilize unconventional vocal sounds such as whispering, growling, animal imitations etc in order to engage students
- ◆ Excessive use of voice throughout the day with little vocal rest
- ◆ Consistently exceeds “vibrational dose”

Ziegler, A., Gillespie, A. I., & Abbott, K. V. (2010).

Roy, N., Gray, S. D., Simon, M., Dove, H., Corbin-Lewis, K., & Stemple, J. C. (2001).



# Consequences of Voice Disorders in Teachers

Injury to laryngeal  
tissue

Decreased job  
satisfaction

Limitation in ability to  
perform and decreased  
attendance.

Reduction in social,  
psychological,  
emotional, physical and  
communicative  
functioning.

Severe vocal disorders  
could cause teachers to  
leave the profession

Decreased quality of  
education delivered

# Research Studies of 5 Treatment Methods for Teachers

# Research Study #1

Overview: 50 full-time elementary and secondary school teachers experiencing voice difficulties who had not received previous treatment were randomly assigned to 3 groups: 1) vocal hygiene, 2) voice amplification, 3) no treatment control group. Received 6 weeks of treatment and met with SLP on 4 occasions. Use of Voice Handicap Index (VHI) before and after treatment as self-assessment of voice

## Voice Amplification (VA)

- ◆ Utilized ChatterVox Portable amplifier
- ◆ Aim of treatment: to decrease vibrational dose and decrease likelihood of tissue damage thus improving vocal quality over time.
- ◆ Treatment Procedure: Tracked compliance and usage of device, observations of teacher utilizing the device and provided feedback during clinical training sessions

## Vocal Hygiene (VH)

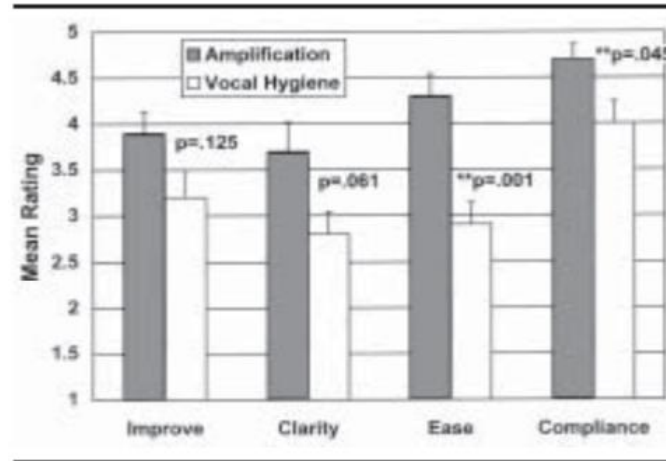
- ◆ Aim of treatment: To educate teaching professional about vocal use and abuse and how to mitigate potential negative vocal hygiene habits through vocal rest, diet changes, increased hydration and air quality etc.
- ◆ Treatment Procedure: Reviewed vocal hygiene suggestions on instructions sheets, answered questions the participant may have and discussed compliance with protocols.



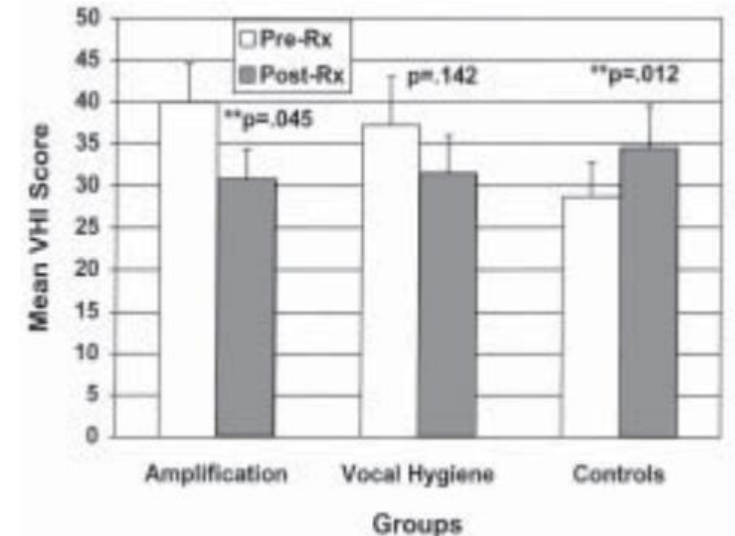
## Results of Study #1

- Teachers self-rated (was confirmed with objective acoustic analysis) a decrease in vocal disorder severity in voice amplification group compared to vocal hygiene and no treatment
- Compared to the no treatment control group, the vocal hygiene group did experience reduced severity of vocal disorder; however it was not statistically significant.
- As a result: the ChatterVox can be recommended as a treatment method for teachers with voice disorders

**Figure 3.** Mean ratings and standard errors for the voice amplification (VA) and vocal hygiene (VH) groups on the posttreatment questionnaire. After treatment, participants were asked to rate their extent of voice improvement and treatment compliance on a 5-point scale whereby 1 = "not at all" and 5 = "a lot." The four questions related to (1) voice symptom improvement, (2) vocal clarity, (3) ease of speaking and singing, and (4) degree of compliance with the prescribed treatment program. The  $p$  values above the columns are based on Mann-Whitney  $U$  tests of mean ratings. Asterisks indicate significant  $p$  values ( $\alpha = .05$ ).



**Figure 1.** Mean pre- and posttreatment Voice Handicap Index scores and standard errors for each group. The  $p$  values above each group are based on paired  $t$ -test comparisons of pre- and posttreatment means. Asterisks indicate significant  $p$  values ( $\alpha = .05$ ).





# Research Study #2

Overview: 60 full time elementary and secondary school teachers with a history of voice problems. Randomly assigned to 3 treatment groups: 1) vocal hygiene, 2) vocal function exercises, 3) no treatment control group. Completed VHI pre and post treatment and received 6 weeks of treatment.

## Vocal Hygiene (VH)

- ◆ Aim of Treatment: To educate teaching professional about vocal use and abuse and how to mitigate potential negative vocal hygiene habits through vocal rest, diet changes, increased hydration and air quality etc.
- ◆ Treatment Procedure: Reviewed vocal hygiene suggestions on instructions sheets, answered questions the participant may have and discussed compliance with protocols.

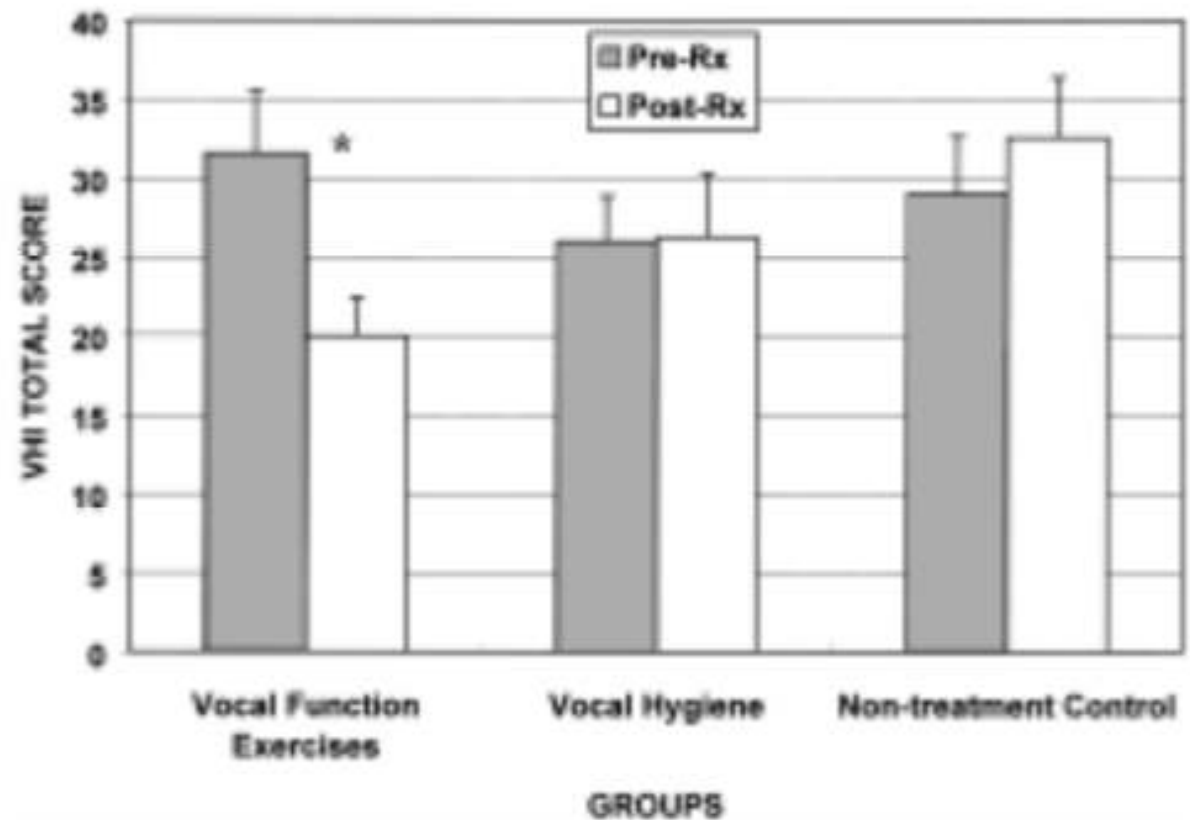
## Vocal Function Exercises (VFE)

- ◆ Aim of Treatment: to strengthen vocal muscles through a program of exercises (i.e. warm-up, stretching, contracting and low impact adductory power exercises)
- ◆ Treatment Procedure: Reviewed vocal exercises, observed teacher performing exercises and provided feedback.
- ◆ Teachers were asked to track maximum duration of productions during warm-up and power exercises during 2x daily practice sessions.

## Results of Study #2

- After a 6 week treatment period there was a reduction in scores on the VHI for the vocal function exercise group only
- Compared to the no treatment control group, the vocal hygiene group did experience reduced severity of vocal disorder; however, it was not statistically significant.

**Figure 1.** Mean pre- and posttreatment Voice Handicap Index (VHI) scores and standard errors for each group. The asterisk indicates a significant difference based upon comparisons of pre- and posttreatment means ( $p < .05$ ).



# Research Study #3

Overview: 64 full time elementary and secondary school teachers with voice disorders. Randomly assigned to 3 treatment groups: 1) voice amplification, 2) resonance therapy, 3) respiratory muscle training. Completed VHI and severity self-rating scale pre and post treatment and received 6 weeks of treatment.

## Voice Amplification (VA)

- Utilized ChatterVox voice amplifier
- Aim of Treatment: To decrease vibrational dose and decrease likelihood of tissue damage thus improving vocal quality over time.
- Treatment Procedure: Participants were required to record hours the amplifier was used. Treatment sessions included reviewing techniques and progress, observing teacher using the amplifier and providing feedback.

## Resonance Therapy (RT)

- Aim of Treatment: A neuromuscular training approach that works to assist voice disordered to produce voice in an easier manner by creating forward or frontal tone thus creating more vibrations in the midfacial region. This creates the strongest possible voice with the least amount of effort, thus decreasing injury on vocal folds.
- Treatment Procedure: Participants were required to track their compliance with 2x daily at-home practice. Treatment sessions included reviewing compliance log and step by step instruction in the treatment hierarchy.

## Respiratory Muscle Training (RMT)

- Aim of Treatment: To improve the strength of expiratory muscles to avoid vocal hyperfunction which in turn reduces potential tissue trauma.
- Treatment Procedure: Participants were required to track their completion of the daily training program. Treatment included establishing a new MEP using the manometer.

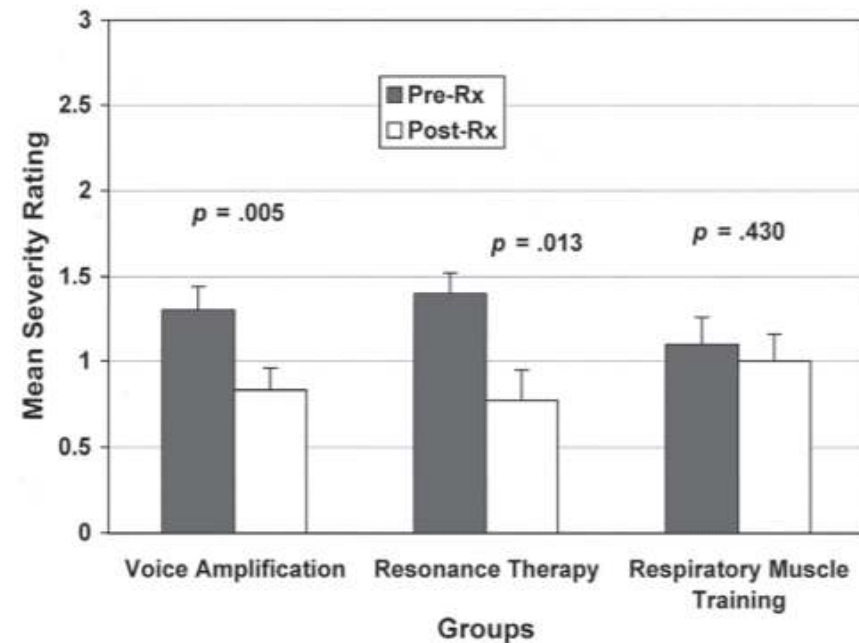


## Results of Study #3

After a 6 week treatment period there was a reduction in scores on the VHI for the voice amplification and resonant therapy groups only

Compared to the resonant therapy and respiratory muscle training group, the vocal amplification group reported significant overall voice improvement, ease in speaking and greater vocal clarity.

**Figure 2.** Mean pre- and posttreatment severity rating scores for each group. Numbers on the y-axis represent increasing severity (0 = normal, 1 = mild, 2 = moderate, 3 = severe). *P* values above each group are based on Wilcoxon signed ranks tests (as-treated analysis).



$p = .008$ . LSD pairwise comparisons ( $\alpha = .05$ ) revealed that both the VA and the RMT groups reported significantly higher compliance with their treatment programs as compared to the RT group (see Figure 3).



# Conclusions/Takeaways

- ◇ Many of these treatments utilize different approaches to treat the same problem
  - ◇ Vocal Hygiene approach (vocal diet) works to minimize and reduce negative vocal behaviors
  - ◇ Vocal amplification targets increasing vocal loudness with technology in order to decrease the vibrational dose on vocal folds. Aims to preserve and restore the voice with no restriction of voice use
  - ◇ Vocal Function Exercises directly work to strengthen the vocal muscles
  - ◇ Vocal hygiene can be utilized as an educational resource and preventative measure; however, if used as a direct treatment for vocal disorders in teachers, it must be used in conjunction with another treatment approach.

# Ways Speech Pathologists Can Educate and Advocate for Teachers

# Vocal Hygiene

- ◆ Vocal hygiene: a daily regime of habits that assist in maintaining healthy vocal folds.
- ◆ Positive Hygiene: adequate hydration, vocal rest, appropriate vocal volume when speaking
- ◆ Factors that impact vocal hygiene: excessive yelling, consistent overuse or misuse of voice, tobacco usage

# Voice Amplification Options

- ◇ FM Systems placed in classrooms
- ◇ ChatterVox voice amplification systems or other similar voice amplification options suited to a classroom environment



# When in doubt-refer to a voice specialist!

- ◆ Teachers can receive individualized private voice therapy to reduce vocal abuse and increase appropriate vocal use and strengthen muscles
- ◆ It is recommended to get things further assessed if the vocal problem has been occurring for longer than 2 weeks. (Gray, 2020)
- ◆ We are a good resource to educate them surrounding the ways in which to get this specific intervention!

# 3 Questions to Consider asking Teachers

- ◆ “1. Do you consume any alcohol and/or drugs (prescribed/unprescribed?
- ◆ 2. Do you have any overt stressors in your life right now? And how do you manage that stress?
- ◆ 3. Tell me about your work and home environment. What sort of “life-hacks” or strategies do you use to help bring a sense of calm and well-being into those spaces? “
  - ◆ (Babajanians, 2018)

# COVID-19 and its effects on vocal hygiene in schools





# Overcoming COVID-19 Voice Effects

## ◆ 1. Environment and Equipment:

- ◆ Utilize voice amplification techniques
- ◆ Voice equipment can be External cue to remind yourself that you do not need to speak as loudly

## ◆ 2. Vocal hygiene:

- ◆ Avoid speaking loudly or at a higher pitch than typical

## ◆ 3. Vocal Casing:

- ◆ Think of the voice as a limited resource
- ◆ Schedule voice breaks, limit vocal use outside of sessions etc.

## ◆ 4. Semi-occluded vocal tract exercises:

- ◆ Straw phonation or light humming.



## VOCAL HYGIENE GUIDELINES



### 1 Stay Hydrated!

If you're not sure how hydrated you are, check the color of your urine.



### 2 Compensate for Dehydrating Agents

These tend to make one lose water quicker; however, how much water one loses is different from person to person. If one or more of these factors is present in your life, consider drinking more water to compensate.



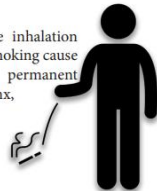
### 3 Reduce High Intensity Voice Use

Prolonged talking, screaming, yelling, chronic coughing or throat clearing all can cause nodules, polyps or cysts to form on the vocal folds.



### 4 Limit Smoke Inhalation

Both direct smoke inhalation and secondhand smoking cause dehydration and permanent damage to the larynx, lungs, and mouth.



### 5 Control Allergen Exposure

Both allergens and many allergy medications can affect one's ability to produce a clear, healthy sound. Research and discuss with your doctor to find the least dehydrating medication which works for you.



### 6 Manage Reflux

Reflux is when stomach acid leaks up the esophagus and on to the vocal folds. This exposure to caustic acid can cause or increase vocal fold damage. Discuss treatment with your speech-language pathologist or primary care physician.



See more information at: [PRISMATICSSPEECH.COM/HYGIENE](https://www.prismaticspeech.com/hygiene)

# One Page Handouts For Teachers

<https://www.teacherspayteachers.com/Product/Free-Vocal-Hygiene-Handout-3712935?st=9d8f16c12d4255b1df68cab25a17fffe>

# One Page Handouts For Teachers

## Daily Vocal Hygiene Log

Student Name: \_\_\_\_\_

Ratings: 1---5 scale as follows: 1= poor, 3 = average, 5 = excellent (Circle the number)

Day 1: \_\_\_\_\_

1. How did your voice feel at the start of the day?

1      2      3      4      5

2. How much water did you drink throughout the day?

1---3 cups    4---5 cups    6---8 cups    >8 cups

3. Amount of yelling during the day?

1-2 times    2-3 times    3-4 times    4-5 times    5 or more times

4. Did you lose your voice during the day, or did your voice trail off into a whisper?

Comments: \_\_\_\_\_

5. How did your voice feel at the end of the day?

1      2      3      4      5

Day 2: \_\_\_\_\_

1. How did your voice feel at the start of the day?

1      2      3      4      5

2. How much water did you drink throughout the day?

1---3 cups    4---5 cups    6---8 cups    >8 cups

3. Amount of yelling during the day?

1-2 times    2-3 times    3-4 times    4-5 times    5 or more times

4. Did you lose your voice during the day, or did your voice trail off into a whisper?

Comments: \_\_\_\_\_

5. How did your voice feel at the end of the day?

1      2      3      4      5

Day 3: \_\_\_\_\_

1. How did your voice feel at the start of the day?

1      2      3      4      5

2. How much water did you drink throughout the day?

1---3 cups    4---5 cups    6---8 cups    >8 cups

3. Amount of yelling during the day?

1-2 times    2-3 times    3-4 times    4-5 times    5 or more times

4. Did you lose your voice during the day, or did your voice trail off into a whisper?

Comments: \_\_\_\_\_

5. How did your voice feel at the end of the day?

1      2      3      4      5

Day 4: \_\_\_\_\_

1. How did your voice feel at the start of the day?

1      2      3      4      5

2. How much water did you drink throughout the day?

1---3 cups    4---5 cups    6---8 cups    >8 cups

3. Amount of yelling during the day?

1-2 times    2-3 times    3-4 times    4-5 times    5 or more times

4. Did you lose your voice during the day, or did your voice trail off into a whisper?

Comments: \_\_\_\_\_

<https://www.teacherspayteachers.com/Product/Voice-Handout-Vocal-Hygiene-Log-2738573?st=9d8f16c12d4255b1df68cab25a17fffe>



# VOCAL HYGIENE

## FOR DIGITAL AND IN PERSON TEACHING

**Did you know**, teachers represent the largest group of professionals who use their voice as a primary tool of trade? According to Roy N, Merrill R, Thibeault S, Parsa R, Gray S, & Smith E. (2004), 58% of teachers have experienced a voice disorder at some point in their careers! The use of virtual learning and masks is not likely to lower this number. However, there are ways to protect your voice and prevent vocal strain!

### STAY HYDRATED

Make sure to drink hydrating liquids throughout the day. (Water! Water! Water!)

### AVOID IRRITANTS

Try to limit irritants, such as caffeine and smoke.

### AVOID YELLING

It's natural to want to yell when wearing a mask, or during a live stream, but it's not always necessary. Try to use visuals and gestures like clapping, hand signals, or switching the lights to get your students attention. Using visuals will also be beneficial for your students!

### TAKE VOCAL RESTS

Find moments throughout the day to take breaks from talking, such as when students are doing independent work.

### AVOID THROAT CLEARING

Constant throat clearing can be a huge irritant to our vocal folds. Try taking a drink of water instead. If the need to throat clear persists, consult with your doctor, as it may be a symptom of a medical condition.

### USE GOOD BREATH SUPPORT

Good breath support can help you protect and project your voice. Remember to take frequent pauses and breaths when speaking.

If you have any questions or concerns, please feel free to talk with your building Speech-Language Pathologist about this!

Passport Speech

# One Page Handouts For Teachers

<https://www.teacherspayteachers.com/Product/COVID-Teacher-Handouts-for-Vocal-Hygiene-and-Wearing-Masks-5899111?st=9d8f16c12d4255b1df68cab25a17fffe>

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IN TEXT: (*ASHA Offers Tips for Teachers to Protect Their Voices This School Year* 2020)

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