

Welcome to this SpeechPathology.com Live Expert e-Seminar!

Management of Hyperfunctional Voice Disorders in
Children

Presented By:

Janet H. Middendorf, M.A., CCC-SLP

Moderated By:

Amy Hansen, M.A., CCC-SLP, Managing Editor,
SpeechPathology.com

Please call technical support if you require assistance
1-800-242-5183

Live Expert eSeminar

ATTENTION! SOUND CHECK!

Unable to hear anyone speaking at this time?

Please contact Speech Pathology for technical support at
800 242 5183

TECHNICAL SUPPORT

Need technical support during event?

Please contact Speech Pathology for technical support at
800 242 5183

Submit a question using the Chat Pod - please include your
phone number.

Earning CEUs

EARNING CEUS

- Must be logged in for full time requirement
- Must pass short multiple-choice exam

**Post-event email within 24 hours regarding the CEU
exam (ceus@speechpathology.com)**

- Click on the "Start e-Learning Here!" button on the SP home
page and login.
- Must pass exam within 7 days of today
- Two opportunities to pass the exam

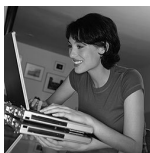
Peer Review Process

Interested in Becoming a Peer Reviewer?

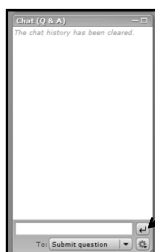
APPLY TODAY!

• 3+ years SLP Clinical experience
Required

• Contact: Amy Hansen at
ahansen@speechpathology.com

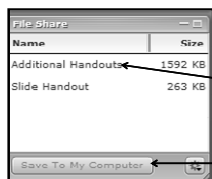


Sending Questions



Type question or comment
and click the send button

Download Handouts



Click to highlight handout

Click Save to My Computer

Management of Pediatric Hyperfunctional Voice Disorders

Janet H. Middendorf, M.A., CCC
Cincinnati Children's Hospital Medical Center
Division of Speech Pathology
Pediatric Voice Center
March 11, 2010
SpeechPathology.com



Terminology

- ☐ Hyperfunction: Result of increased and poorly regulated laryngeal muscle tension.
 - Imbalances and increases in muscle tension
- ☐ Phonotrauma
 - Abuse or misuse of the vocal folds
 - Accumulated stress of vibration on vocal folds
 - Can result in development of lesions such as vocal fold nodules

Vocal Abuse

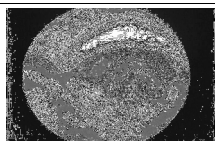
- ☐ Suggests:
 - Child is intentionally abusing his/her voice
 - Child has an abusive personality
 - Child is verbally abusive to others
 - Child is being yelled out by others
- ☐ Therefore:
 - Term Phonotrauma is suggested

Prior to Voice Therapy

- ☐ Assessment by ENT and speech-language pathologist
- ☐ Laryngeal assessment
 - Endoscopic
 - ☐ Rigid or flexible scope
 - ☐ Rule (confirm) out laryngeal pathology
- ☐ Acoustic assessment
- ☐ Aerodynamic assessment
- ☐ Perceptual assessment

Common Findings in Hyperfunctional Voice Disorders

- ☐ Vocal fold edema
- ☐ Vocal fold nodules
 - Hour glass configuration
 - ☐ Site of nodules is location of brunt of impact
 - Allows air to escape
 - Decreased voicing time
 - Dysphonia
 - ☐ breathiness
 - ☐ hoarseness



Elements of Normal (best) Vocal Fold Vibration

- ☐ Ability of vocal folds to adduct or close
- ☐ Consistent air flow - air pressure
- ☐ Pliable vocal folds (mucosa covering)
- ☐ Barely adducted or abducted vocal folds
 - Maximum vocal economy

Verdolini, et al 1998, Journal of Voice, Laryngeal Adduction in Resonant Voice

Value of a Good History

- ☐ Parent's perception of voice concerns
- ☐ Child's voice usage
- ☐ Observation of parent's voice usage
- ☐ Child's environment
 - Home
 - ☐ Sports
 - ☐ Behavior
 - School

Informal Assessment

- ☐ Describe/rate voice
 - CAPE-V *
 - ☐ overall, roughness, breathiness, pitch, loudness
 - Quick Screen for Voice **
- ☐ Strain
- ☐ Maximum phonation time
- ☐ Record voice

*<http://www.asha.org/uploadedFiles/members/divs/D3/CAPEVprocedures.pdf>
 **Stemple, J, Glaze, L., Kelchner, L., Quick Screen for Voice and Supplementary Documents for Identifying Pediatric Voice Disorders, LSHSS, Vol 35

Treatment Strategies

Parent Involvement

- ☐ Is essential for home practice
- ☐ Is essential for compliance
 - Many families have their own patterns of phono- trauma
 - They need to buy into the concept
- ☐ Is essential for carryover
- ☐ Need to understand rationale for treatment





Types of Voice Therapy

- ☐ Indirect (behavior management)
 - Vocal hygiene
 - Identify and eliminate vocal traumatic behaviors
 - Improve hydration
 - Noisy environment
 - Diet associated with reflux
- ☐ Direct (hands on)
 - Exercises

Indirect Voice Therapy

- ☐ Identify – Eliminate
 - Phonotrauma
 - ☐ Shouting, yelling, throat clearing, loud whispering, grunting during exercise, smoking
 - Overuse of voice
- ☐ Hydration
- ☐ Reflux precautions

Substitute Behaviors for Phonotrauma	
<input type="checkbox"/> Using a loud voice or yelling to get someone's attention 	<input type="checkbox"/> Have child walk to listener <ul style="list-style-type: none"> ■ Chart the number of traumatic behaviors (?) ■ Rehearse behavior prior to need ■ Chart behavior ■ Reward behavior

Substitute Behaviors	
<input type="checkbox"/> Yelling and screaming during play activities 	<input type="checkbox"/> Use soft voice during play??? <input type="checkbox"/> Teach child to project loud voice <input type="checkbox"/> Use a front focus <input type="checkbox"/> Teach child to "shout"




Substitute Behaviors	
<input type="checkbox"/> Talking loud over competing background noises	<input type="checkbox"/> Turn down music or TV <input type="checkbox"/> Use preferential seating <input type="checkbox"/> Use ear plug(s) <ul style="list-style-type: none"> ■ Decreases urge to increase vocal intensity to hear self ■ Will hear self better with ear plugs ■ Great on playground 

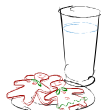
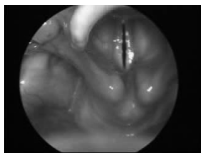
Chart Vocal Behaviors		
Type of phono trauma	Wednesday	Thursday
Shouting, screaming		
Motor sounds		
Animal, super hero sounds		
Excessive talking		
Throat clearing		

Chart Vocal Successes		
Type of phono trauma	Wednesday	Thursday
Shouting, screaming	Walked to mom	
Motor sounds	Buzzed lips	
Animal, super hero sounds	Put cape on my back and "flew"	
Excessive talking	Sent secret note	
Throat clearing	Drank water slowly	

Substitute Behaviors	
<input type="checkbox"/> Throat Clearing <ul style="list-style-type: none"> ■ Vocal folds close ■ Vibrate in a high friction manner 	<input type="checkbox"/> Long hard swallow <ul style="list-style-type: none"> ■ Vocal folds close ■ Remain closed for a few seconds ■ Gives larynx feedback that they have been "together" but in a non traumatic manner <input type="checkbox"/> Increase hydration 

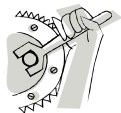
Hydration

- Dehydration results in increased subglottic air pressure, which results in increased tension, strain, hyperfunction
- Well hydrated vocal folds require less subglottic air pressure to vibrate
- Likelihood of edematous tissue reaction should be minimized



Hydration-Why Helpful to Voice

- Decreased subglottic air pressure results in decreased tension, strain, aiming towards more balanced function
 - Reduction in tension results in reduced hyperfunction
 - Less work to phonate - makes voicing easier!



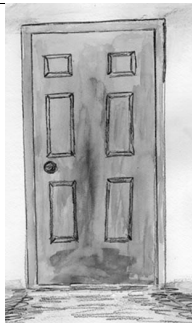
Hydration: How Much and What?

- More with sports, illness, medications
- 1½ of normal body weight in ounces (i.e. 100 lb person should consume 50 Oz fluid per day)
- Water, sports drinks
- Non citrus drink (non citrus in case of reflux)
- “Wet” snacks – fruits and vegetables



Water is Source of Lubrication

- If hinges of door are not well lubricated
 - Takes extra effort
- If hinges are well lubricated
 - Can use finger to set it into motion



Reflux

- Known as:
 - Gastric esophageal reflux disease (GERD)
 - Extrinsic esophageal reflux
 - Laryngopharyngeal reflux (LPR)
 - Backward flow of digestive gastric from the stomach through the esophagus to the level of the larynx
- Acid in a non acidic environment
 - Results in irritation
- Symptoms
 - Heartburn, sour taste in mouth in morning, globus, cough, "mini-throw-up" (baby barf)

Reflux Precautions

- Change in diet
 - Decrease carbonated, citrus drink
 - Decrease spicy foods
 - No food or drink 3-4 hours before bed
- Raise head of bed
- Anti-reflux medication
 - Reduces acidity of gastric contents, does not change the actual reflux of stomach contents
- Nissen fundoplication



Direct Voice Therapy



Treatment Goal: Improve Voice Quality

- ☐ Reduce laryngeal hyperfunction
 - Front focus voice production
 - Improve hydration
 - Improve diet, if needed
- ☐ Fire SLP
 - Child/parent assume the SLP's role

Direct Treatment Strategy: Front Focused Phonation

- ☐ Vocal Function Exercises
 - (modified as needed)
- ☐ Resonant Voice Therapy
 - (modified as needed)

Front Focus

□ Rationale

- Titze (2006) “heighten interaction” between the source and the filter
- Semi-occlusion in the front of the vocal tract (at the lips) heightens source (vocal) tract interaction



Titze Review (2006)

- “Economy-oriented voice training is based on the premise that vocal injury can be minimized if vibration dose and collision stress in the vocal folds are reduced.”
 - Goal is to reduce the stress of vibration of the vocal folds
 - Intent is to produce voice with normal intensity with less mechanical trauma to tissue
 - Shape of vocal track with oral cavity results in increased energy production without more strain on vocal folds.

Theoretical Hierarchy of Semi Occluded Voice Track

- Highly resistant (small diameter) stirring straw
 - Less resistant (larger diameter) drinking straw
 - Bilabial or labiodental voiced fricative
 - Lip or tongue trill
 - Nasal consonants
 - Vowels /u/ and /i/
- (Titze, 2006)

Vocal Function Exercises

- ☐ As modified by Joseph Stemple, Ph.D.
- ☐ Exercises designed to rebalance the three subsystems of voice production: respiration, phonation and resonance
- ☐ If all are balanced, voicing is at its best and its easiest
- ☐ Exercises as a type of "physical therapy" for the vocal folds

(Stemple, Glaze, & Klaben, 2000)

Vocal Function Exercises

- ☐ Four steps
 - Warm up
 - Stretches – Glide up
 - Contractions – Glide down
 - Power building
- ☐ Perform each 2 times
- ☐ 2 times a day

Technique

- ☐ Exercises done as softly as possible
- ☐ Anchor system if needed
 - ☐ Lip buzz
 - ☐ Tongue trill
 - ☐ Bilabial fricative (kazoo like)
- ☐ Make connection between lungs and lips
- ☐ Make a tape/CD for the child for home practice



Warm up

- ☐ Sustain "E" for as long as possible on the musical note F. The production should be a nasal placement



Warm Up Video

Stretching

- ☐ Glide from your lowest note to your highest note using the word "Whoop or Knoll".
- ☐ * If /hw/ production is correctly produced, the sound should be vibrating the lips similar to the sound of a kazoo and should make the lips tingle.
- ☐ If this is difficult to produce, try producing a "raspberry" with lips and glide up the scale.

Stretching Video

Contracting

- ☐ Glide from your highest note to your lowest note on the word "Boom".
- ☐ Similar frontal placement of the sound should be produced, as described above.
- ☐ After correctly producing the glide in this manner, try it again using a "yawn-sigh" approach.

Contracting Video

Power Building Exercises

- ☐ Sustain the musical notes C, D, E, F, and G for as long as possible saying the word “Old” without the “d”.
- ☐ The rounded posture of the lips is important when trying to obtain the “frontal focus” of sound production.
- ☐ Depending on the child’s fundamental frequency, you may need to alter the notes.
- ☐ In young children, use three notes, comfortable, high, low.

Power Building Video

Who Can Perform VFE?

- ☐ Most children can be taught
 - Important that parents understand the exercises
 - It is the quality of the exercises which count...
- ☐ May be too difficult for some preschoolers
 - But not all...

VFE Video

Resonant Voice

- Easy phonation based on voice production involving sensation of oral vibration
- Considered a holistic voice therapy approach
- Placement is on the anterior alveolar ridge or higher in the face....want to feel the “buzz”
 - Resonant Voice Therapy developed by Katherine Verdolini, based on the work of Arthur Lessac and Mark Madsen

(Verdolini-Marston, Burke, Lessac, Glaze, & Caldwell, 1995)

Resonant Voice Training

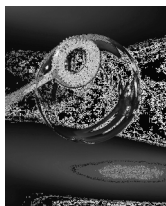
- Need training in RVT
- As concept is sensory feedback
 - Is modified for children

Modify Front Focused Phonation with Younger or Developmentally Delayed Child

- ☐ Raspberries on lips or tongue, trill tongue
- ☐ Blow bubbles through wand
- ☐ Blow bubbles through straw in liquid
- ☐ Blow through kazoo, whistle
- ☐ Try all first without voicing to get posture, then add voicing

Modify Front Focused Phonation with Younger or Developmentally Delayed Child

- ☐ Use visual Feedback
 - Bubble blowing
 - with bubble wand
 - with straw in cup of water



Blowing Bubbles with Phonation Video

Modify Front Focused Phonation with Younger or Developmentally Delayed Child

- Increase difficulty with decreased visual feedback

- Phonate through straw in water
- Repeat, take straw out of water
- Repeat, take straw out of mouth



Straw Bubbles Phonation Video

Kazoo or Whistle are Good Props

- Use of a “prop” helps child learn the “semi-occluded” position



Front Focus with Whistle Video

Modify Front Focused Phonation with Younger Child

- ☐ Make lips a Kazoo
 - raspberries
 - tongue trill
 - produce “V”
 - produce reverse “V”
 - produce bilabial “V”

Tongue Trill Video

Functional Front Focused Phonation with Younger Child

- ☐ Lip buzz for truck, plane, car
- ☐ MMMMM for rocking baby doll
- ☐ Animal sounds: cat meow, owl hoot,
- ☐ Read books loaded with nasal and other semi occluded phonemes: m, n, z, v, j

(Katherine Verdolini, Lessac-Madsen Resonant Therapy-Kids-Pittsburgh, PA, 2006)

Functional Front Focused Phonation with Younger Child

- ☐ Combine resonant voice with articulation approach
 - Target resonant and front focus consonants and vowels
 - ☐ m, n, z, v, y, w, u, o
 - Isolation, words, phrases etc.
 - Games
 - ☐ Where are you (hide and seek)
 - ☐ My oh my, mama may I?

Carryover?

- ☐ Follow hierarchical principles
 - Similar to articulation therapy
 - Syllables, words, phrases, sentences etc.
 - Use "anchor" for semi occluded position sounds
 - ☐ /W/
 - ☐ /O/
 - ☐ /M/
 - ☐ /N/

Hierarchy of Sounds

- ☐ /wh/ (what, where)
 - Syllables through sentences
- ☐ /h/ (who)
 - Syllables through sentences
- ☐ /m/,/n/ my mom
 - Syllables through sentences

And make it their own....

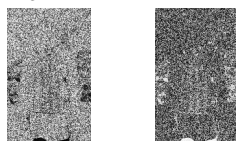
- ☐ Give child strategies to “get back” to a better, front focused voice

Progress of Treatment

- ☐ Establish front focus in phonation
- ☐ Teach Vocal Function Exercises to child
- ☐ Stress importance of family involvement in daily exercise program
- ☐ Progress front focus technique through a typical therapy hierarchy (e.g., syllables, words, phrases, sentences, etc.)

Value of Negative Practice

- ☐ Able to compare, contrast and identify
 - Front vs. back focus
 - Hyperfunction (strain)
 - Diaphragmatic vs. thoracic breath support



Classroom Management



Make Friends with the Staff

- ☐ Classroom Teacher
- ☐ Music Teacher
- ☐ Science Teacher
- ☐ Physical Education Teacher
- ☐ Any staff member who has had (or has) vocal fold nodules)

Teacher's Involvement

- ☐ Music Teacher
- ☐ Science Teacher
- ☐ PE Teacher
- ☐ Coach/Cheerleader squad
- ☐ Classroom Teacher
- ☐ Knowledge of laryngeal mechanism
- ☐ Understanding of need for warm up exercises
- ☐ Great for involving anatomy, physiology and physics, reflux
- ☐ Motivating factor for child
- ☐ Teach "OK" technique for "shouting"
- ☐ Allowing child to bring water bottle to class

Chorus and Music Teacher

- ☐ Voice warm ups are similar to vocal function exercises
- ☐ Consider letting child participate in warm - ups
- ☐ "lip sync" material
- ☐ Work closely with school signing teacher



Singing Teacher vs. SLP

- ☐ ASHA suggests separate approach may not be the best.
- ☐ Integrated approach most effective to optimal voice care and production
 - ASHA
 - National Association of Teachers of Singing (VATS)
 - Voice and Speech Trainers of America (VASTA)
- ☐ Occasionally – multispecialization

What About The Child Who Wants To Sing?



- ☐ Trained vs. Untrained
- ☐ Untrained
 - Discourage for the time being as most children will revert to hyperfunction
- ☐ Trained:
 - May consider allowing limited involvement
 - Level of training
 - ☐ School/church/community choir
 - ☐ Pre-professional training
 - School for the Creative and Performing Arts

Environment

- ☐ Vaporize Your Classroom (no less than 20% humidity)
- ☐ Reduce Listener-Speaker Distances
 - Typical adult voice is > 60 dB at distance of 3 feet
- ☐ Keep Temperature at a comfortable level (not too hot)
- ☐ Attention Getters other than voice (Lights Out, Bell, etc.)

Decorate!!



- ☐ Hang Fabric/Cloth Class Projects and banners to increase noise Absorption
 - To reflect and/or absorb sound
- ☐ Engage the art teacher and the classroom teacher
 - Can be an art project for class

Qualifying for School Services

- ☐ Not easy, but possible
- ☐ “A child is described as having a voice problem if the voice is distracting or unpleasant to listeners and is abnormal enough to interfere with communication” (Wilson, 1987)

Eligibility for Services

- ☐ Need to be within the framework of IDEA
- ☐ Part A- Services in educational setting
- ☐ Part B- Child is eligible for services if impairment “adversely impacts educational performance.”
- ☐ ...adversely impacts educational performance not defined
- ☐ Oral communication is essential to classroom learning
- ☐ Voice difference may self limit the child’s participation in class

(Hoffman Ruddy 2004)

Direct Limitations

- ☐ Difficulty being heard in (or out) of classroom
- ☐ Limited participation in classroom presentations
- ☐ Reluctance to participate in school activities
- ☐ Negative attention from classmates, teachers
- ☐ Decreases intelligibility

(Hoffman Ruddy 2004)

Resources	
<input type="checkbox"/> Easy Does it for Voice (Linguasystems) <input type="checkbox"/> Using your Best Voice (Moya Andrews Super Duper) <input type="checkbox"/> Martha Mouth and Baby Bear (book and cards) Super Duper	

Questions?	
janet.middendorf@cchmc.org	
