


# **HEARING SOLUTIONS SIG**

**Sun City Texas Computer Club**

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# Enhance Weak Speech To Better Communicate with Hearing Loss

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Hears To You

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MOBILE

AUDIOLOGY

EXPERTS

# Dr. Natasha Dewald

## Education

- Undergraduate in Speech Pathology:
  - University of Regina, University of Alberta, Minot State (1992)
- Master of Audiology
  - University of Washington (1994)
- Doctorate of Audiology
  - University of Florida- Gainesville (2002)

## Previous Experience

- Health Dept in Vancouver treating all ages
- Hospital in San Diego working with Neuro-Otologists treating balance disorders and hearing aids
- Owned hearing aid dispensing practices in Palm Springs

## Current

**Hears To You –Mobile Audiology.** I bring the clinic to YOU!

# How Speech Is Produced

- Vocal Cords are like Rubber Bands
- As air is exhaled, the Cords are pushed apart and we adduct (close) the Cords to create speech
- ***The Bernoulli Effect***
  - is the scientific principle that draws the vocal folds together. The Bernoulli Effect is all around us. It is the main principle of lift, which causes [airplanes to fly](#), and baseballs to spin.



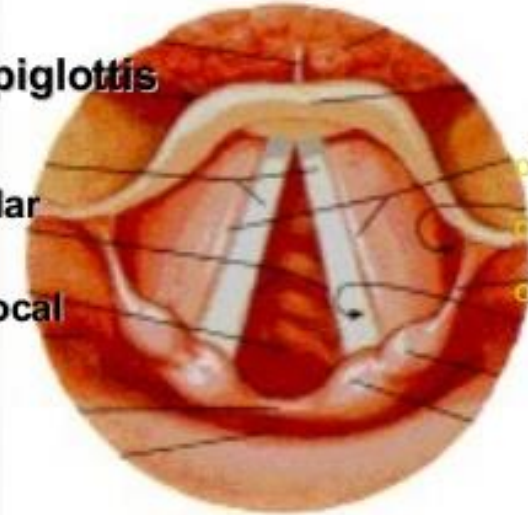
## LARYNGOSCOPE VIEW OF LARYNX

◦Ant.

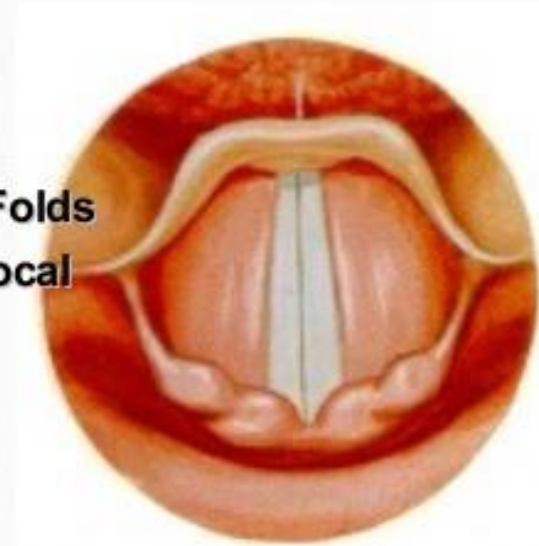
◦Tongue

◦Epiglottis

◦Vestibular  
Folds  
(false vocal  
folds)



◦Vocal Folds  
(true vocal  
folds)



◦Post.

◦vocal folds  
◦adducted when  
◦talking or singing

◦pgmedicalworld.com

## Causes of Weak Voice

- Cords, like a rubber band, loosen with use (age)
  - Loose cords, less tension, weaker speech
- Too much mucus on the Cords
  - Allergies, post nasal drip, medications
- Dryness of the Cords
  - Medications, Age, Lack of water in diet

# Causes of Weak Voice

- Body Posture
  - Hunched Over
    - Collapses Thoracic Space
    - reduces lungs ability to expand to force air through Cords
- Physical Stability
  - Shaky or unstable on feet affects lung capacity

# Causes of Weak Voice

- Body Stiffness
  - We stiffen with age, more difficult to take in proper amount of air
- Disease
  - ALS, (or Lou Gehrig's disease)
- Stroke



# Causes of Weak Voice

- Reflux
  - 60% of adults have reflux
  - Symptoms may include
    - laryngitis, hoarseness, sensation of a lump in the throat, post-nasal drip, chronic throat clearing, excessive throat mucous, sore throat, cough, laryngospasm (spasm of the throat), and/ or throat pain

- Reflux
  - Vocal folds begin to swell from acidic irritation, their normal vibration is disrupted. Even small amounts of exposure to acid may be related to significant laryngeal damage

# Strategies To Improve Vocal Quality

## Symptom:

- Low air capacity (hunched over, low thoracic space)

## TALKER Should:

- Sit down, don't hunch over

# Strategies To Improve Vocal Quality

## Symptom:

- Mucus, post nasal drip, allergies

## TALKER Should:

- Drink plenty of water, take your allergy meds or sinus rinse



# Strategies To Improve Vocal Quality

## Symptom:

- Reflux

## TALKER Should:

- See MD first for Diagnosis
- Drink plenty of water, reduce fatty foods
- Sleep propped up
- Reduce weight, no tobacco

# Strategies To Improve Communication

## For the TALKER:

- BE PATIENT!
- Slow down
  - take breaths in between words
- Face the listener, maintain visual contact of listener
- don't speak from another room!

# Strategies To Improve Communication

## For the LISTENER:

- BE PATIENT!
- Wear your hearing aids daily!
- Have your aids professionally cleaned at least 1 x a year
- Get closer to the talker, weak speech doesn't travel!

# Strategies To Improve Communication

## For the LISTENER:

- Be eye level: sit down if talker sits down
- High frequencies don't travel far!
- Reduce competition: turn down TV or radio
- Repeat back what you think you heard
- Maintain good lighting



# Strategies To Improve Vocal Quality

## To Improve Breath Control

- **Blowing Bubbles**

- great exercise for breath control as well as pursing the lips

- **Blow a Harmonica**

- great oral motor exercise for breath control and lip pursing, but with this one you get to make some noise!

# Strategies To Improve Vocal Quality

## To Improve Breath Control

### • Blow a Harmonica

- If breath control is weak then your goal might be to get "louder" sounds from the harmonica.
- If your lip strength is weak you might focus on trying to play just one note at a time.

# Strategies To Improve Vocal Quality

## To Improve Breath Control

- **Blow a Kazoo**

will not only help your ***breath control***,  
but it will also help with **vocal control** as well.

***Why?***

# Strategies To Improve Vocal Quality

## To Improve Breath Control

- **Blow a Kazoo**      ***WHY???***

Because you have to *hum* to get any sound out of a kazoo. At first you can try to make a simple humming sound. As you progress you can try to vary the pitch of your hum and even try to play a simple tune (like, "Mary had a Little Lamb").



# Augmentative Technology

## Artificial Larynx

- Uses external vibration to stimulate movement of the voice box



# Augmentative Technology

## EZ Speech

- Type – to- Speak
- Is an App



# Augmentative Technology Communication Board

- Uses pictures to form Sentences – to-Speak
- Can be its own device or and App



# Augmentative Technology

## Research

- **Improved devices for nonspeaking people**
  - **More natural synthesized speech**  
personalized text-to-speech synthesis system that synthesizes speech that is more intelligible and natural sounding to be incorporated in speech-generating devices.



# Augmentative Technology

## Research

- **Improved devices for nonspeaking people**  
Individuals who are at risk of losing their speaking ability can prerecord their own speech, which is then converted into their personal synthetic voice.

# Augmentative Technology

## Research

- **Brain–computer interface research**
- A relatively new and exciting area of study is called brain–computer interface research.

# Augmentative Technology

## Research

- **Brain–computer interface research**
  - Neural signals in a person's brain can be translated by a computer to help someone communicate.

# Augmentative Technology

## Research

- **Brain–computer interface research**
  - By implanting electrodes on the brain's motor cortex
  - can control communication software and type out words simply by imagining the movement of his or her hand.

# Augmentative Technology

## Research

- **Brain–computer interface research**
- Other researchers are attempting to develop a prosthetic device that will be able to translate a person's thoughts into synthesized words and sentences.





## **Ten Commandments For The Hard Of Hearing**

Any hard of hearing person who has ever tried to listen to someone talking from another room, through a cigarette, or over a television set will appreciate the Ten Commandments for the Hard of Hearing. They were developed by Dr. John Leddo, director of audiology at eh Easter Seal Rehabilitation Center of Eastern Fairfield County, Connecticut. Dr. Leddo presented them at the 1981 White House Conference on Aging. We suggest that you present them-with a smile-to your family and friends.

1. Thou shalt not speak from another room
2. Thou shalt not speak with you back toward the person with a hearing problem (or his/her back toward you).
3. Thou shalt not start speaking and walk away.
4. Thou shalt not start speaking and turn away from the person with a hearing problem.

5. Thou shalt not speak in competition with something else.
6. Thou shalt get the attention of the person with the hearing problem. (Do not start speaking while he/she is reading or concentrating on television.
7. Thou shalt try to speak face-to-face at all times.
8. Thou shalt try to remove obstructions while speaking. (Take your hand from your face, the cigarette from your mouth).
9. Thou shalt try to speak distinctly.
10. Thou shalt try to be patient.

**N E X T   S L I D E**

**Take Voice Training Seriously**

**See Programs on Following Slides**

**Info - Contact Nelda McQuary at  
[mcquary@suddenlink.net](mailto:mcquary@suddenlink.net)**

Copy links below & paste in browser

## PRACTICE IMPROVING YOUR VOICE

How to Train Your Voice

<https://www.wikihow.com/Train-Your-Voice>

Five Secrets to Make Your Voice Sound Better

<https://www.caricole.com/5-secrets-to-make-your-voice-sound-better/>

How to Develop a Perfect Speaking Voice

<https://www.wikihow.com/Develop-a-Perfect-Speaking-Voice>

# PRACTICE IMPROVING YOUR VOICE

## Videos

How Does One Improve Their Voice

<https://www.youtube.com/watch?v=aeyn3kLd1Y0>

Articulation - This is a real cute active exercises beginning with waking up your body, then exercises your voice, which exercises your brain.

<https://www.youtube.com/watch?v=AQNMCGKvOk0>