Slide 10

**Thyroid Cartilage**

1. Thyroid incisure or notch
2. Thyroid prominence
3. Thyroid lamina
4. Superior cornu (horn)
5. Inferior cornu (horn)

---

Slide 11

**Cricoid Cartilage**

- Lateral View
  1. Anterior arch
  2. Posterior lamina
  3. Articular facet
- Posterior View
  1. Posterior lamina
  2. Articular facet
  3. Anterior arch

---

Slide 12

**Joints**
Slide 13

**Ligaments**

Extrinsic

<table>
<thead>
<tr>
<th>Ligament</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RLG</td>
<td></td>
</tr>
</tbody>
</table>

Intrinsic

<table>
<thead>
<tr>
<th>Ligament</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Slide 14

**Muscles**

1. Transverse arytenoid muscle
2. Posterior cricoarytenoid muscle
3. Inlet of the larynx
4. Epiglottis
5. Cornua of thyroid cartilage
6. Cricoid cartilage

---

Slide 15

**Muscles**

1. Oblique arytenoid and aryepiglottic muscles
2. Inlet of the larynx
3. Epiglottis
4. Cornua of thyroid cartilage
5. Posterior cricoarytenoid muscle
6. Cricoid cartilage
Slide 16

**Muscles**

1. Posterior cricoarytenoid muscle
2. Inlet of the larynx
3. Epiglottis
4. Cornua of thyroid cartilage
5. Cricoid cartilage
6. Vocal cord
7. Arytenoid cartilage

---

Slide 17

**Intrinsic Muscles**

- Attachment inside larynx
- Sound production
- Always in pairs
- *Contract simultaneously
- Depending on their effect on shape of glottis and position of vocal folds

---

Slide 18

**Intrinsic Laryngeal Muscles**

<table>
<thead>
<tr>
<th>Muscle Name</th>
<th>Attachments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cricothyroid</td>
<td>Cricoid to thyroid</td>
</tr>
<tr>
<td>Pars recta</td>
<td>Cricoid to inferior border of the thyroid lamina</td>
</tr>
<tr>
<td>Pars oblique</td>
<td>Cricoid to inferior cornu of the thyroid</td>
</tr>
<tr>
<td>Thyroarytenoid (TA)</td>
<td>Thyroid to arytenoid vocal process</td>
</tr>
<tr>
<td>Thyromuscular</td>
<td>Medial portion of the thyroarytenoid</td>
</tr>
<tr>
<td>Lateral cricoarytenoid (LCA)</td>
<td>Lateral portion of the thyroarytenoid</td>
</tr>
<tr>
<td>Interarytenoid (IA)</td>
<td>Joins the left and right muscular processes of the arytenoids</td>
</tr>
</tbody>
</table>

---

Intrinsic Laryngeal Muscles

Functions

<table>
<thead>
<tr>
<th>Functions</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adduction or abduction of the vocal folds</td>
<td></td>
</tr>
<tr>
<td>Shortening or lengthening the true vocal folds</td>
<td></td>
</tr>
<tr>
<td>Thickening or thinning the body of the vocal fold</td>
<td></td>
</tr>
<tr>
<td>Sharpening or rounding the free edge of the vocal fold</td>
<td></td>
</tr>
<tr>
<td>Narrowing or decreasing size of the vocal fold</td>
<td></td>
</tr>
</tbody>
</table>


Intrinsic Laryngeal Muscles

Muscles Actions

CT = cricothyroid; TA = thyroarytenoid; LCA = lateral cricoarytenoid; IA = interarytenoid; PCA = posterior cricoarytenoid; NA = not applicable

CT = tenser; TA = adductor; LCA = adductor; IA = adductor; PCA = abductor

Length

<table>
<thead>
<tr>
<th>Function</th>
<th>CT</th>
<th>TA</th>
<th>LCA</th>
<th>IA</th>
<th>PCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Longer</td>
<td>Shorter</td>
<td>Shorter</td>
<td>-</td>
<td>NA</td>
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</table>

Thickness

<table>
<thead>
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<th>CT</th>
<th>TA</th>
<th>LCA</th>
<th>IA</th>
<th>PCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness</td>
<td>Thinner</td>
<td>Thicker</td>
<td>Thicker</td>
<td>-</td>
<td>NA</td>
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</table>

Edge

<table>
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<tr>
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<th>TA</th>
<th>LCA</th>
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<th>PCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edge</td>
<td>Sharper</td>
<td>Rounder</td>
<td>Rounder</td>
<td>-</td>
<td>-</td>
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</table>

Tension

<table>
<thead>
<tr>
<th>Function</th>
<th>CT</th>
<th>TA</th>
<th>LCA</th>
<th>IA</th>
<th>PCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tension</td>
<td>Stiffer</td>
<td>Stiffer</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Key Points

- Increases in length and tension of the vocal folds will result in increase in pitch.
- During phonation, fundamental frequency is primarily determined by activity of the intrinsic muscles and to a lesser extent by subglottal pressure.

Adduction & Abduction

**Abductor**
- separate arytenoids/vocal folds;
  - for respiration

**Adductor**
- pronate/approximate arytenoids/vocal folds for phonation/protection

---

**Adduction & Abduction**

Action of the lateral cricoarytenoid and interarytenoid muscles (adduction)

Action of the posterior cricoarytenoid muscle (abduction)

---

Brings vocal folds to midline adduction

Brings faces of arytenoids together
Intrinsic Laryngeal Muscles

Merati, AL, Bielamowicz, SA (2007) Textbook of Laryngology

Interarytenoid:
- Transverse brings the faces of the arytenoids together
- Obliques bring corniculate and cuneiform cartilages together

Cricothyroid:
- Lower, stretches, and thins vocal folds
- Paramedian position
- Single largest contributor to fundamental frequency, especially at higher tones

Lateral cricoarytenoid
- Antagonist of the PCA
- Elongates, thins, and sharpens edge of vocal folds
- Brings vocal folds to midline adduction

Thyroarytenoid (vocalis)
- Body of the vocal fold
- Lateral portion = thyro muscularis
- Medial portion = vocalis
- Contracts to shorten and thicken the vocal fold, increase the mass of the vibrating edge
Extrinsic Muscles

**Suprahyoid**
- Raise larynx, move anteriorly to swallow
  - Stylohyoid
  - Geniohyoid
  - Mylohyoid

**Infrahyoid**
- Lower the larynx during inspiration
  - Omohyoid
  - Sternothyroid
  - Sternohyoid
  - Thyrohyoid

Extrinsic muscles attach to larynx and someplace outside (mandible, temporal bone, sternum, scapula, etc.)
<table>
<thead>
<tr>
<th>Type of nerve</th>
<th>Site of origin</th>
<th>Site of termination</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensory-afferent</td>
<td>Mucus membrane lining of respiratory &amp; digestive tracts: pharynx, larynx, trachea, esophagus, heart, abdominal viscera</td>
<td>Medulla</td>
<td>Tactile &amp; proprioception, taste, &amp; pain sensation</td>
</tr>
<tr>
<td>Motor-efferent</td>
<td>Medulla</td>
<td>Muscles of pharynx &amp; larynx; parasym fibers to abdominal &amp; thoracic viscera (almost all thoracic &amp; abdominal organs)</td>
<td>Swallowing, movement of pharynx &amp; larynx; inhibitory fibers to heart; secretory fibers to gastric glands &amp; pancreas; vasodilator fibers to abdominal viscera (secretory to all glands?)</td>
</tr>
</tbody>
</table>

**Innervation**

Diagram of vocal fold vibration:

1. Subglottic air pressure

2. Diagram of vocal fold vibration:

3. Subglottic air pressure

4. Subglottic air pressure

5. Subglottic air pressure

6. Subglottic air pressure

7. Subglottic air pressure

8. Subglottic air pressure

9. Subglottic air pressure

10. Subglottic air pressure
Key Points

1. The mean rate of vocal fold vibration per second represents the habitual pitch also known as fundamental frequency.
2. Phonation threshold pressure (PTP) is the minimum subglottal pressure required for initiation and sustaining vocal fold oscillation and is an indication of vocal fold function.

In order to adequately assess dysphonia, one must do objective test. What is heard perceptually (breathiness/hoarseness) does not clearly indicate what is seen at the level of the glottis.
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**Evaluation of Voice Patient**

1. Perception of vocal quality (pitch, loudness)
2. Status of glottal closure
   - diagnosis provided by specialist
   - request information if known or request order to videostrobe patient
3. Acoustic measurement (Digital voice recording, Visipitch)
4. Instrumental-Videostroboscopy

---

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**Laryngoscopy to establish status of glottal closure:**

1. Direct light (minimum) – Halogen
2. Videostroboscopy (ideally) – Looks at true motion of tvf
3. Future: High speed kymography

---

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**Normal Videostroboscopy**

Digital Videostroboscopy provides slow motion visualization of true vocal folds with superior image quality. Allows observation of vibratory characteristics such as mucosal wave, symmetry, and amplitude of vibration, glottal shape at closure and timing relationship.
Videostroboscopy

- Glottal closure: complete, incomplete, posterior gap, irregular, spindle, anterior gap, hourglass
- Vocal fold edge: smooth, rough, vascular marks, erythema, mucous

- A/P and lateral compression (hyperfunction)
- tvf mobility: paresis, paralysis
- Amplitude
- Mucosal wave
- Phase closure
- Phase symmetry

Stroboscopic Assessment

Clinical Voice Pathology
**Slide 46**

**Polyp**

Can occur singly or in pairs. Usually, a polyp forms mid-way along the free margin of the vocal fold. Sometimes, a smaller lesion forms on the opposite vocal fold in reaction to the polyp, where the tissue gets irritated by the initial polyp hitting against it during each cycle of vibration.

**Slide 47**

**Vocal fold hemorrhage**

Vocal fold hemorrhage is a very rare occurrence that usually is caused by aggressive or improper use of vocal folds (e.g., cheerleading). It is a result of rupture of a blood vessel on the true vocal fold, with bleeding into the tissues of the fold.

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**Reinke’s Edema**

The swollen vocal fold covering vibrates more slowly than normal vocal folds, resulting in raspiness and significantly lowered vocal pitch. For this reason, women more frequently notice the symptoms than men, who already have a low-pitched voice. The swelling can get so large that it can partially block the airway, causing a sensation of shortness of breath.
Reinke’s Edema

The swelling of the vocal fold mucosa is caused by smoking.

Laryngitis/Inflammation

Any “laryngitis” that lasts beyond two weeks, or fails to improve with antibiotics, should be evaluated by a physician, preferably one who can make a complete examination of the larynx and vocal folds.
Granulomas or Contact Ulcers

Discrete (clearly-defined) lesions that occur on the back portion of the vocal fold where it attaches to the arytenoid cartilage. Laryngopharyngeal reflux (LPR) is the most common cause of formation of a granuloma.

Laryngopharyngeal Reflux: LPR

Cyst

The vocal fold on the left side of the picture has a clearly-defined cyst which causes the vocal fold to bulge outwardly, impairing phonatory glottal closure and mucosal wave vibration.
**Papilloma**

Persistent tumors thought to be caused by viruses (no clear etiology).
- Found equally in both genders of children.
- Less frequently, the disorder can begin in adult years.
- The lesions affect the mass and stiffness of the cover, transition, and body of the vocal fold, resulting in severe dysphonia.

**Laryngeal Web**

- Tissue bridge between the two vocal folds and the anterior commissure.
- Webbing of the anterior glottis causes various degrees of dyspnea and stridor, depending on the extent of the web.

**Sulcus Vocalis**

The sulcus on each vocal fold can be seen as a ridge running the length of the folds.
**Slide 58**

Presbylarynx

Lax or weak vocal folds due to the normal aging process

**Slide 59**

Pre-malignant tumor

**Slide 60**

Epithelial dysplasia: Carcinoma
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Cancer
T1 cancer confined to the vocal fold. Larynx cancers which start on the vocal folds produce symptoms of hoarseness. They are often diagnosed very early and at this stage have a 90% cure rate with either conservative surgery or irradiation.

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Supraglottic Cancer
Confined to the top of the larynx or epiglottis. This cancer is often silent and does not cause symptoms until very late. Often the patient will present with a neck node.

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Adductor Muscle Paralysis
True vocal folds are abducted or away from midline. Compensate with the opposite true vocal fold crossing midline.
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**Vocal Fold Paralysis**

Adductor muscle paralysis compensated by phonating with false vocal cords.

---

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**Bilateral Vocal Fold Paralysis**

- Bilateral adductor muscle paralysis:
  - Strong raspy voice. The true vocal folds are lateral and not touching in midline. The patient has a good airway but a very weak voice.

- Bilateral abductor muscle paralysis:
  - Strong voice. The vocal folds are touching each other in midline. The patient’s voice is strong but the airway has severe obstruction.

---

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**Superior Laryngeal Nerve Paralysis**

- Weak raspy voice.
- Does not significantly affect the speaking voice but does affect singing.
- The loss of the function of the left thyroarytenoid muscle results in the shifting of the supraglottis to the right and a shortening of the true vocal fold.
Laryngeal Dystonia (Spasmodic Dysphonia)

Laryngeal dystonia, or spasmodic dysphonia (SD) is a voice disorder caused by involuntary movements of one or more muscles of the larynx. There are two major types of spasmodic dysphonia: adductor and abductor, although most are a mixture of both types.

Adductor SD
Adductor SD, with spasms causing sporadic vocal fold closures, are identified by a strained, strangled voice.

Abductor SD
Abductor SD, with spasms causing sporadic vocal fold closures, produces a voice with interruptions of air.

Functional Disorders
Muscle Tension Dysphonia (MTD)

- Referred as muscle misuse dysphonia, vocal hyperfunction, or muscle tension dysphonia (MTD).
- When an imbalance of muscle activity occurs during phonation, the result can be a range of symptoms from vocal fatigue, neck discomfort, altered vocal quality, to complete loss of voice.

Dysphonia plica ventricularis

- A laryngeal function disorder caused by phonation of the ventricular folds (false folds) rather than the true vocal folds. When the ventricular folds are squeezed together, the resulting voice is harsh and strained. This can be a learned behavior, but may be the result of true vocal fold weakness.

Paradoxical vocal fold dysfunction

- Vocal folds coming together during inspiration, instead of normally opening to allow air to flow freely (phonation during inspiration)
- Patient is gasping for air. Frequently, these patients are seen in the emergency room and treated (incorrectly) for asthma.
- The diagnosis can be suspected by the history and physical exam, and confirmed by examination of the larynx with a flexible fiberoptic laryngoscope during an attack.
- Laryngopharyngeal reflux can exacerbate the symptoms.
- Treatment may involve several specialties, especially Speech-Language Pathology.
TREATMENT OF DYSPHONIA DISORDERS

Laryngeal Disorders – Treatment Options

Some voice disorders can be easily treated with appropriate medication, voice rest, increased hydration, and vocal hygiene. Others may require surgical intervention and/or extensive behavioral voice therapy.

Medical

Various types of medications can improve different laryngeal disorders. These medications will be explained to the patient at length during their office visit and some times educational handouts will be provided.
Surgical Intervention

After all conservative measures have been exhausted, a surgical procedure may be recommended to improve the vocal effects of the laryngeal disorder.

- **Microlaryngoscopy With Phonosurgery:** A very delicate surgical procedure to remove lesions from the larynx using phoneatric instruments for optimal results.

- **Fat Injection Thyroplasty:** A procedure used for augmentation of the vocal folds to achieve better laryngeal closure. The benefits include using patient’s own tissue, therefore diminishing side effects.

- **Gore-Tex® Thyroplasty:** The procedure is used to close a bigger laryngeal gap. The technique involves insertion of a Gore-Tex implant through a small incision in the neck.

- **Botox®:** This procedure is typically performed in the office using a flexible scope to look at the larynx or an electromicrogram, as a guide for injecting the Botox® into the vocal folds. More information on Botox® injections.
Laryngeal Dystonia (Spasmodic Dysphonia)

Whether the spasms occur with the vocal folds open or closed, this neurological disorder improves with Botox® injections and supplemental voice therapy.

Incompetent Larynx

Treatment for incomplete vocal fold closure may involve specialized voice therapy and/or surgical management.

Benign Lesions

Treatment may include medication, voice rest, increased hydration, vocal hygiene, extensive voice therapy and/or surgical intervention.
**Behavioral voice therapy**

A rich and interesting history of voice therapy approaches has evolved leading to several philosophical orientations of therapy. Behavioral voice therapy may be the only treatment needed for some voice disorders. Also it is used to aid in recovery after surgery of the larynx.

---

**Evaluation of Voice Patient**

- Perception of vocal quality (pitch, loudness)
- Status of glottal closure:
  - diagnosis provided by specialist
  - request information if known or request order to videostroboscopy
- Acoustic measurement (Digital voice recording, Visipitch)
- Instrumental-Videostroboscopy

---

**Case History**

- Data gathering history
  - acute - symptoms for 2 weeks
  - chronic - more than 4 weeks or progressive
- Diagnostic test results
  - "GUT"
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Subjective/Perceptual Measures

- Patient response
- Clinician judgment

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Individualized Treatment

Instrumental Evaluation

Perceptual

Acoustic Measures

Case History

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VOICE-RELATED QUALITY OF LIFE (V-RQOL) MEASURE
UNIVERSITY OF MICHIGAN

NAME: __________________________________ DATE: _____________

We are trying to learn more about how a voice problem can interfere with your daily activities. On this paper, you will find a list of possible voice-related problems. Please answer all questions based upon what your voice has been like over the past two weeks.

There are no "right" or "wrong" answers. Considering both how severe the problem is when you get it, and how frequently it happens, please rate each problem on how "bad" it is (that is, the amount of each problem that you have). Use the following scale for rating the amount of the problem: 1= None, not a problem, 4= A lot, 2= A small amount, 5= Problem is as "bad as it can be," 3= A moderate (medium) amount.

0= None, not a problem
1= A little
2= A small amount
3= A moderate (medium) amount
4= A lot
5= Problem is as "bad as it can be"
Because of my voice, how much of a problem is this?

1. I have trouble speaking loudly or being heard in noisy situations.
   1  2  3  4  5

2. I run out of air and need to take frequent breaths when talking.
   1  2  3  4  5

3. I sometimes don't know what will come out when I begin speaking.
   1  2  3  4  5

4. I am sometimes anxious or frustrated (because of my voice).
   1  2  3  4  5

5. I sometimes get depressed (because of my voice).
   1  2  3  4  5

6. I have trouble using the telephone (because of my voice).
   1  2  3  4  5

7. I have trouble doing my job or practicing my profession (because of my voice).

8. I avoid going out socially (because of my voice).

9. I have to repeat myself to be understood.

10. I have become less outgoing (because of my voice).

V-RQOL General Algorithm

\[
\text{Total Score (Items 1-10)} = \frac{100 - \left( \frac{\text{Raw Score} - 10}{40} \times 100 \right)}{1}
\]

- 0-10% Profound
- 11-20% Severe
- 21-40% Moderate-severe
- 41-60% Moderate
- 61-70% Mild
- 71-90% Mild
- 91-100% Normal
THE REFLUX SYMPTOM INDEX (RSI)

Within the last month, how did the following problems affect you:

1. Hoarseness or a problem with your voice
2. Clearing your throat.
3. Excess throat mucus or postnasal drip.
4. Difficulty swallowing food, liquids, or pills.
5. Coughing after you have eaten or after lying down.
6. Breathing difficulties or choking episodes.
7. Tomato juice or something sticking in your throat.
8. Heartburn, chest pain, indigestion, or stomach acid coming up.

A score of > 10 may indicate significant reflux.

GLOTTAL CLOSURE INDEX (GCI)

Within the last month, how did the following problems affect you:

1. Speaking took extra effort
2. Throat discomfort or pain after using your voice
3. Vocal fatigue (voice weakened as you talked)
4. Voice cracks or sounds different

Scale for evaluating the hoarse voice (GRBAS)

Grade

G rade

The degree of hoarseness or voice abnormality

R ough

Irregularity of vocal fold vibration. Irregular fluctuations in the fundamental frequency and/or the amplitude of the glottal source sound.

B reathy

Extent of air leakage through the glottis, related to turbulence.

A sthenic

Weakness or lack of power in the voice, related to weak intensity of the glottal source sound and/or a lack of higher harmonics.

Hyperfunctional

Hyperfunctioning state of phonation. It is related to an abnormally high fundamental frequency, noise in the high-frequency range, and/or richness in high-frequency harmonics.
**Slide 94**

**GRBAS (cont’d)**

<table>
<thead>
<tr>
<th>Grade</th>
<th>0</th>
<th>non- hoarse or normal</th>
<th>1</th>
<th>slight</th>
<th>2</th>
<th>moderate</th>
<th>3</th>
<th>severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rough</td>
<td>0</td>
<td>non- hoarse or normal</td>
<td>1</td>
<td>slight</td>
<td>2</td>
<td>moderate</td>
<td>3</td>
<td>severe</td>
</tr>
<tr>
<td>Breathy</td>
<td>0</td>
<td>non- hoarse or normal</td>
<td>1</td>
<td>slight</td>
<td>2</td>
<td>moderate</td>
<td>3</td>
<td>severe</td>
</tr>
<tr>
<td>Astenic</td>
<td>0</td>
<td>non- hoarse or normal</td>
<td>1</td>
<td>slight</td>
<td>2</td>
<td>moderate</td>
<td>3</td>
<td>severe</td>
</tr>
<tr>
<td>Strain</td>
<td>0</td>
<td>non- hoarse or normal</td>
<td>1</td>
<td>slight</td>
<td>2</td>
<td>moderate</td>
<td>3</td>
<td>severe</td>
</tr>
</tbody>
</table>

**Adopted from:** Clinical Examination of Voice, M. Hirano, 1981

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**Slide 95**

**GRBAS (cont’d)**

<table>
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<tr>
<td>2-4</td>
<td>Mild</td>
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<tr>
<td>5-6</td>
<td>Mild-severe</td>
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<tr>
<td>7-9</td>
<td>Moderate</td>
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<td>10-12</td>
<td>Moderate-severe</td>
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<tr>
<td>13-14</td>
<td>Severe</td>
</tr>
<tr>
<td>15</td>
<td>Profound/Aphonic</td>
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</tbody>
</table>

---

**Slide 96**

**Voice objective/Acoustic Measures**

- Voice lab (Visipitch, computerized speech lab, Videostroboscopy)
- Acoustic measures establish base line levels
- Pre/post comparative measurement
Voice Management Strategies

- Hygienic voice therapy
- Psychogenic voice therapy
- Resonant voice therapy (Modified RSVT)
- Team management of specific laryngeal pathologies
- Eclectic approach: establishing your own style

THERAPY

“The human body is one of the greatest compensatory mechanisms.”

Vocal hygiene

This is the term used for the care and use of the human voice required to keep it healthy. It requires a daily regimen, which reduces environmental and behavioral factors that may damage your voice.
Components of vocal hygiene

- Healthy diet and lifestyle
- Voice warm-ups before use
- Voice training on proper technique
- Voice exercises to improve endurance and power
- Proper voice use/avoidance of misuse and overuse

Value your voice
Optimize your voice
Invest in your voice
Cherish your voice
Exercise your voice

Healthy Voice Habits

Avoid:
- Clearing your throat or coughing habitually
  Because vocal folds contact one another forcefully and cause tissue damage

Instead:
- Swallow slowly, sip ice water and/or suck on ice chips

Healthy Voice Habits

Avoid:
- Smoke, alcohol, and caffeine
  Because:
  - It causes irritation and drying of tissue
  - Causes reflux
  - Smoking is a leading cause of cancer

Instead:
- Drink a lot of decaffeinated fluids
**Slide 103**

**Healthy Voice Habits**

**AVOID**
- Screaming, excessive loud voice use, and cheering
- Because vocal folds contact one another forcefully tissue damage

**Instead**
- Use gestures, noise, or instruments to attract attention from a distance

**Slide 104**

**Healthy Voice Habits**

**AVOID**
- Speaking over loud noise for a long period of time
- Because it's hard to monitor your loudness when there's background noise

**Instead**
- Reduce background noise when possible
- Choose quiet restaurants
- Face the person
- Consider using an amplifier in noisy environments

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**Healthy Voice Habits**

**AVOID**
- Talking when you feel pain or discomfort in your neck or throat
- Because it leads to further muscle tension and strain

**Instead**
- Take a voice "nap"
Healthy Voice Habits

**AVOID**
- Taking a lot when you have a cold
  - Because thick mucous and sometimes swelling of the vocal fold makes it harder to produce voice

**Instead**
- Rest your voice and yourself when you can. Drink lots of fluids.

WHISPERING IS NOT BETTER THAN TALKING

---

**Gould Gargle**

- ½ teaspoon sea salt (or kosher salt)
- ½ teaspoon baking soda
- ½ -1 teaspoon corn syrup (or honey or maple syrup)
- 1 cup warm water

Gargle silently, do not rinse for 5 minutes

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**Team Approach**

- PCP "gatekeeper"
- ENT/Otolaryngologist
- Gastroenterologist/Pulmonologist
- SLP
- Voice/acting coach
- Patient
Slide 109

Voice Breakdown

I. CONVERSATION
II. SUSTAIN SMOOTHE AIRFLOW /s/, ooo
III. SUSTAIN SMOOTHE AIRFLOW /s/, ooo
IV. CARRYOVER OF GOOD QUALITY TO AUTOMATIC SEQUENCES (attention to quality vs. words)
V. ORAL READING
VI. CONVERSATION

I. RELAXED BREATHING (foundation)

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Relaxed
throat breathing

• Hand on abdomen
• Inhale into the abdomen – abdomen goes out
• Exhale from the abdomen – abdomen comes in
• Inhale with relaxed throat and mouth
• Jaw gently released

Smell the roses...

Slide 111

Resonant Voice Therapy (RSVT)

• Holistic voice therapy
• Developed by Katherine Verdolini
• Based on the work of Arthur Lessac
• RVT is a continuum of oral sensations and easy phonation building from basic speech gestures through conversational speech.

• Goal: Achieve the "best/healthiest" possible voice with the least effort and impact between the vocal folds.
• Focusing on the processing of sensory information and auditory feedback.
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**RVT Exercises**

- **Syllable level**
  - mee mean
  - my mine
  - mo moan
  - moo moon
  - may maine

- **/m/ words**
  - meal monster
  - mean mongrel
  - measles moose
  - mince moody
  - mint minister
  - mince mutter

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**RVT Exercises**

- **RVT phrases**
  - Mary made me mad
  - My mother made marmalade
  - My mom may marry Marv
  - My merry mom may marry Marv
  - Marv made my mother merry

- **Longer /m/ sentences**
  - Making money is macho
  - Mean men make money
  - Meet me in Mississippi
  - Many hands make simple work
  - Mona mixed a marvelous milkshake

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**Sentence length phrasing task**

- Excuse me
- Excuse me, sir
- Excuse me, sir, I need directions
- Excuse me, sir, I need directions to the store
- Excuse me, sir, I need directions to the store on Main Street
- Excuse me, sir, I need directions to the store on Main Street that sells tools
- Excuse me, sir, I need directions to the store on Main Street that sells tools from major manufacturers

(adapted from "The source for Voice Disorders: Adolescent and Adult")
Psychogenic Voice Therapy

- Comprise a complex blend of psychological, social, and physiologic factors
- Several terms: functional dysphonia, functional aphasis, psychogenic voice disorders, conversion voice disorders, muscle tension dysphonia (MTD)

Manual Circumlaryngeal therapy (Digital massage)

- Encircle the hyoid bone with the thumb and middle finger.
- Exert light pressure with the fingers in a circular motion. Watch facial expression for signs of discomfort or pain.
- Repeat this procedure with the fingers in the thyroid space.
- Find the posterior borders of the thyroid cartilage. Repeat.

- With the fingers over the superior borders of the thyroid cartilage, begin to work the larynx gently downward.
- Ask the patient to prolong vowels during this procedure, noting changes in quality and pitch.
- Once a voice change has taken place, experiment with the voice.
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- The role of the SLP includes sorting through all the factors to determine the most appropriate method of improving the voice quality.
- Approach:
  - Relaxation
  - Manual circumlaryngeal therapy (digital massage)
  - Visual biofeedback

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“If you can do it one time, you can do it a million times. The SLP job is to help the patient determine what it is they are doing to produce the desired outcome, such that they can do it again and again.”

Slide 120

“My job is to teach you to be me for you for the duration.”

You can learn to become your own voice therapist in order to establish and maintain healthy vocal fold sound production for your lifetime.