After The Instrumental Assessment: Targeting Dysphagia Treatment to MBS & FEES Findings

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Compensation vs Rehabilitation:

- Compensation:
 - · designed to improve safety/efficiency during PO intake
 - · should be short-term
- Rehabilitation:
 - · targets swallowing physiology
 - provides long-term benefit

Compensation:

- Diet modification
- Thickened liquids
- Postural changes
- Compensatory strategies



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Rehabilitation:

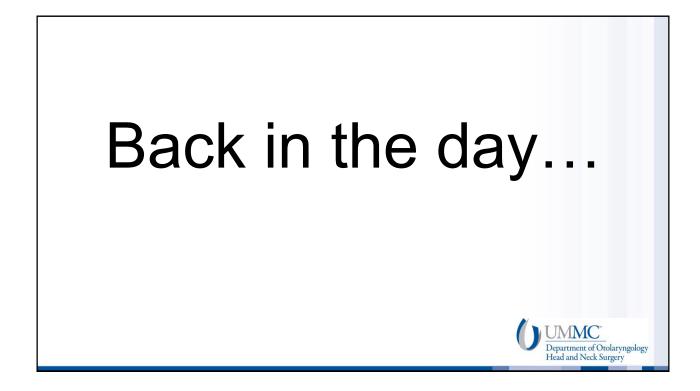
- Lingual Press
- Effortful Pitch Glides
- Masako
- Shaker Exercise
- RMST

Both Compensatory & Rehabilitative:

- Effortful Swallow
- Mendelsohn Maneuver
- Supraglottic Swallow
- Super Supraglottic Swallow



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My OLD standby treatments:

- Vallecular residue = reduced tongue base retraction
 - · Repeat words with velar sounds
 - Repeat words with "ir" sound
 - Yawn
 - Gargle



My OLD standby treatments:

- Pyriform residue = reduced laryngeal elevation
 - Pitch glides
- Aspiration during the swallow
 - Vocal fold adduction exercise (bear down while saying "ah")
- Aspiration before the swallow
 - Thermal-tactile stim (rub anterior faucial pillars with iced laryngeal mirror)

My OLD standby treatments:

- Diet consistency modification
- Thickened liquids
- Chin tuck



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Dysphagia Treatments

Principles of Strength Training

- Intensity
- Resistive Loading
- Repetition
- Specificity
- Transference



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Effortful Swallow

- · Can be compensatory and rehabilitative
- Increases pressure on bolus (Clark & Shelton, 2014)
- Increases base of tongue retraction and pharyngeal constriction (Huckabee et al, 2005)
- Increases hyolaryngeal elevation and excursion (Bulow et al, 2001)
- Increases laryngeal vestibular closure (Hind et al, 2001)

Effortful Swallow

- Close lips
- Press tongue against hard palate
- Squeeze muscles hard as you swallow
- Can be done with or without a bolus



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Effortful Swallow

• On MBS:

- · Residue on tongue, hard palate, or base of tongue
- Residue in valleculae, posterior pharyngeal wall, and/or pyriforms
- Decreased pharyngeal contraction
- Decreased tongue base retraction
- Decreased UES opening

Effortful Swallow

- On FEES:
 - Base of tongue residue
 - Vallecular, posterior pharyngeal wall and/or pyriform residue



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Mendelsohn Maneuver

- · Can be compensatory and rehabilitative
- Increases opening of UES (Kahrilas et al, 1991)
- Prolongs opening of UES (Kahrilas et at, 1991)
- Increases laryngeal closure for airway protection (Cook et al, 1989)

Mendelsohn Maneuver

- Palpate anterior neck; feel for laryngeal elevation during the swallow
- Then swallow again, but extend the laryngeal elevation for a couple of seconds before completing the swallow



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Mendelsohn Maneuver

- On MBS:
 - Decreased laryngeal elevation
 - Decreased laryngeal vestibule closure
 - Decreased UES opening
 - Pyriform residue
- On FEES:
 - Pyriform residue

Supraglottic Swallow Super Supraglottic Swallow

- · Can be compensatory and rehabilitative
- Assists in closing vocal folds before & during swallow (Martin et al, 1993)
- Increases UES opening (Bulow et al, 1999)
- Prolongs UES opening (Bulow et al, 1999)
- Cough/throat clear may expel residue from laryngeal vestibule *



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Supraglottic Swallow

- Take a deep breath and hold it *
- Take a bite or sip
- Swallow while holding your breath *
- · Cough/clear throat immediately after swallowing
- Swallow again

Super Supraglottic Swallow

- Take a deep breath and hold it *
- Take a bite or sip
- · Bear down or pull up on seat of chair
- Swallow while holding your breath *
- · Cough/clear throat immediately after swallowing
- Swallow again



Supraglottic Swallow Super Supraglottic Swallow

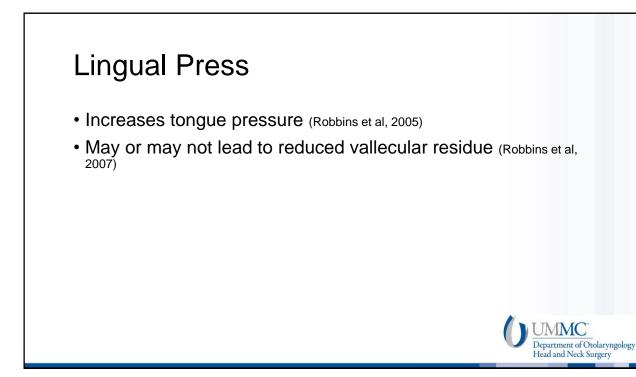
• On MBS:

- Decreased laryngeal vestibule closure
- · Aspiration after the swallow due to spill over of pyriform residue
- Trialed volitional cough effectively clears penetrated or aspirated material

Supraglottic Swallow Super Supraglottic Swallow

- On FEES:
 - Decreased laryngeal vestibule closure
 - · Spillage of post-cricoid residue into laryngeal vestibule
 - Trialed volitional cough effectively clears penetrated or aspirated material





Lingual Press

- · Close mouth with teeth lightly touching
- Place tongue on alveolar ridge (just behind teeth)
- Press firmly and hold for 10 seconds
- (Can palpate submental region to give feedback)



Lingual Press

• On MBS:

- Decreased tongue base retraction
- Residue on tongue, palate, base of tongue, and/or in valleculae
- · Decreased bolus formation/AP bolus propulsion

• On FEES:

• Residue in valleculae and/or base of tongue

Effortful Pitch Glides

- Elevates larynx
- Improves vocal fold adduction
- Creates pharyngeal constriction
- Improves pharyngeal shortening

(Miloro et al, 2014)



Effortful Pitch Glides

- Take a deep breath
- Sing "eee" at normal pitch then glide up to high pitch (falsetto)
- Then exert effort while sustaining "eee"

Effortful Pitch Glides

- On MBS:
 - Decreased laryngeal elevation
 - Decreased pharyngeal constriction
 - · Residue on posterior pharyngeal wall and/or in pyriforms
 - · Penetration that results in aspiration after the swallow



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Effortful Pitch Glides

- On FEES:
 - Residue on posterior pharyngeal wall and/or in pyriforms
 - · Penetration results in aspiration after the swallow

Masako

- Increases contraction of superior pharyngeal constrictor (Fujiu & Logemann, 1996)
- Caution: may inhibit base of tongue retraction, which could reduce clearance of vallecular residue (Doeltgen et al, 2011)



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Masako

- Stick out tongue between teeth (or gums)
- Gently bite down
- · Keep tongue in this position and swallow saliva hard
- *** Do not use PO bolus during exercise

Masako

- On MBS:
 - Decreased pharyngeal constriction
 - · Poor contact between posterior pharyngeal wall and base of tongue
 - Residue in valleculae and/or posterior pharyngeal wall



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Masako

- On FEES:
 - Residue in vallecula and/or posterior pharyngeal wall
 - Decreased base of tongue movement

Shaker Exercise

- Strengthens suprahyoids for increased hyolaryngeal elevation and excursions (Mepani et al, 2008)
- Increased UES opening compared to sham exercise in healthy elderly adults (Shaker et al, 1997)



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Shaker Exercise

- After 6 weeks of exercise, improvement noted in UES opening, decreased aspiration, and decreased pyriform residue in patients with dysphagia (Shaker et al, 2002)
- Compared to traditional swallowing therapy, same effect on UES opening but less aspiration with Shaker (Logemann et al, 2009)

Shaker Exercise

- Caution
 - Contraindicated for patients with cervical neck issues (limited cervical ROM; cervical spine fusion)
 - · Contraindicated for patients with tracheostomy tubes



Shaker Exercise

- Isometric
 - Lie flat on back
 - Lift head until you see your feet (use only neck muscles; do not use abdominal muscles)
 - Hold for 1 minute
 - Relax and lower head; rest for 1 minute
 - Do 3 times

Shaker Exercise

- Isokinetic
 - Lie flat on back
 - Lift head until you see your toes (use only neck muscles; do not use abdominal muscles)
 - Lower head
 - · Lift and lower head 30 times



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Shaker Exercise

- On MBS:
 - Decreased anterior hyoid excursion
 - Decreased UES opening
 - Residue in pyriforms
- On FEES:
 - Residue in pyriforms
 - Spillage of post-cricoid residue into laryngeal vestibule

Respiratory Muscle Strength Training

- Inspiratory muscle strength training (IMST) increases inspiratory muscle strength
- Expiratory muscle strength training (EMST) increases expiratory muscle strength
- Variety of devices on the market -



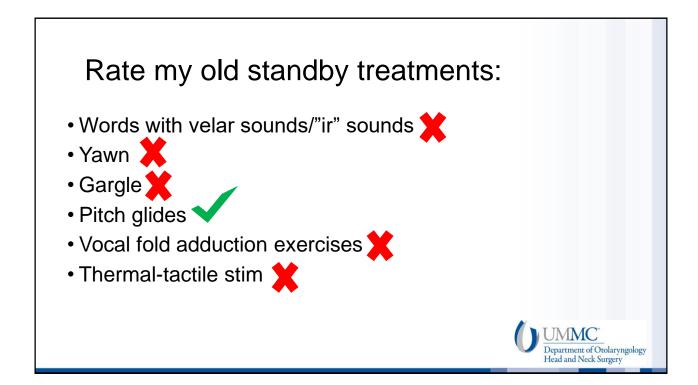
EMST 150

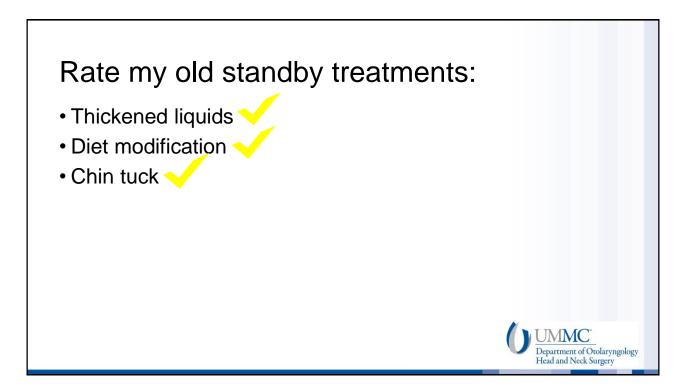
- <u>https://emst150.com/</u>
- <u>https://emst150.com/content-restricted/</u>
- Increases activation of submental muscles (Troche et al, 2010)
- Increases hyolaryngeal elevation(Troche et al, 2010)
- Improves cough strength (Pitts et al, 1997)
- Has been researched for use in patients with multiple etiologies

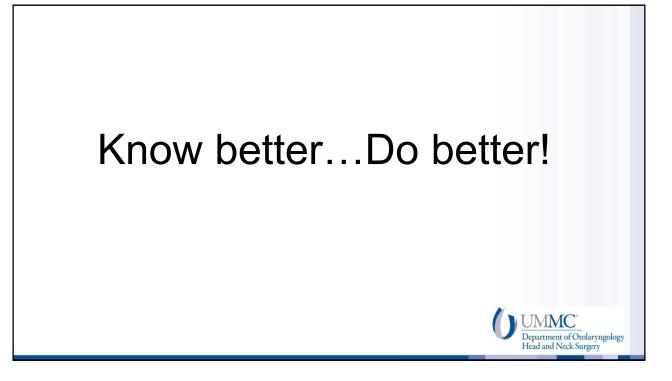
Other

- Iowa Oral Performance Instrument (IOPI) -<u>https://iopimedical.com/medical-professionals/</u>
- Tongueometer https://www.craniorehab.com/tongueometer
- McNeil Dysphagia Therapy Program (MDTP)
- Surface Electromyography (sEMG)
- MD Anderson Swallowing Boot Camp









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