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

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Compensation:

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

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Rehabilitation:

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

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Both Compensatory & Rehabilitative:

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

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Back in the day…

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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

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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)

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My OLD standby treatments:

- Diet consistency modification
- Thickened liquids
- Chin tuck

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Dysphagia Treatments

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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)

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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

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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)

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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

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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

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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

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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

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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

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Lingual Press

- Increases tongue pressure (Robbins et al, 2005)
- May or may not lead to reduced vallecular residue (Robbins et al, 2007)

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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)

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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

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Effortful Pitch Glides

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

(Miloro et al, 2014)

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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”

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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

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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

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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

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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)

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Shaker Exercise

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

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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

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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

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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 -

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EMST 150

- https://emst150.com/
- https://emst150.com/content-restricted/
- 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

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Other

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

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Rate my old standby treatments:

- Words with velar sounds/"ir" sounds ✗
- Yawn ✗
- Gargle ✗
- Pitch glides ✓
- Vocal fold adduction exercises ✗
- Thermal-tactile stim ✗

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Rate my old standby treatments:

- Thickened liquids ✓
- Diet modification ✓
- Chin tuck ✓

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Know better…Do better!

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