The Use of Vocal Function Exercises as a Treatment Modality in VF Paralysis

Overview of Vocal Function Exercises (VFE’s)

- Briess (1957, 1959); Barnes (1977); Stemple (1980’s)
- Vocal Function Exercises: a series of systematic voice manipulations, similar in theory to physical therapy for the vocal folds, designed to strengthen and balance the laryngeal musculature, and to improve the efficiency of the relationship among airflow, vocal fold vibration, and resonance

What do VFE’s consist of?

- Warm-up
- Stretch
- Contraction
- Isometric “Power” Exercise (i.e. Static Strength Training)
- Technique of exercise execution is essential for optimal results
Benefits of VFE’s

- Provides quantitative change over time
- Easy to do
- Enables patient independence
- Very little time (<10 min 2x/day)
- Positive task

Voice Related Symptoms

- Hoarseness (dysphonia)
- Breathiness or weakness (often sounds high pitched)
- Vocal fatigue (physical fatigue)
- Limited vocal range
- Breaking or cracking voice
- Shortness of breath/stridor (bilateral VF paralysis)

Treatment Planning

- Unilateral & Bilateral RLN Paresis & Paralysis
  - Consider positioning
  - Consider stimulability
  - Consider voice demands
  - Consider dysphagia complaints
  - Consider time/nature of injury
  - Consider airway
- Treatment Options
  - Do nothing
  - Voice Tx
  - Temporary or permanent medialization
  - Improve airway-compromise voice

Criteria for VFE Therapy Trial

- < 1 yr onset of VF paralysis
- No compromising factors
- Patient motivation
- Poor surgical candidate
Case Studies

Case Study #1: Pre-Tx
- 72 y/o Male
- One month post-op for right carotid
- Complaint: woke up from surgery with hoarseness; dysphagia on thin liquids
- Medications: Plavix, Glucophage, Lipitor
- Max. Airflow: 2170 ml/sec
- VFE Goal: 2410/80=30.1sec

Case Study #2: Pre-Tx

Visit 1: Baseline
Visit 2: One Week
Visit 3: Three weeks*
Visit 4: Five Weeks**
Visit 5: Seven Weeks***

VFE's

<table>
<thead>
<tr>
<th></th>
<th>Visit 1 Baseline</th>
<th>Visit 2 One Week</th>
<th>Visit 3 Three weeks*</th>
<th>Visit 4 Five Weeks**</th>
<th>Visit 5 Seven Weeks***</th>
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<tbody>
<tr>
<td>AVG. VFE</td>
<td>4 seconds</td>
<td>7.7 seconds</td>
<td>7.2 seconds</td>
<td>19.6 seconds</td>
<td>33 seconds</td>
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<td>Warm up</td>
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<td>4, 6, 7</td>
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<td>13, 18</td>
<td>27, 23</td>
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<td>A4</td>
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<td>E</td>
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<td>7, 8</td>
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<td>24, 21</td>
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<td>G</td>
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<td>9, 9</td>
<td>7, 6</td>
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<td>B</td>
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<td>9, 9</td>
<td>7, 10</td>
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Case Study #2: Post VFE's

VFE's for treatment of VF Paralysis

Case Study #3

- 42 y/o male; Electrical Engineer
- Sudden onset of hoarseness 5 weeks prior to examination associated with a flu-like virus
- Never had voice problems before
- Meds: Prilosec for LPR

Case Study #3: Sound & Video

Pre-Tx

VFE's for treatment of VF Paralysis

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Visit 1: Baseline

Visit 2: One Week*

Visit 3: Three weeks

Visit 4: Five Weeks

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Case Study #3: Post-VFE’s Video & Sound

Conclusions

- Provide non-invasive option for trial period
- Patient is actively involved in the process
- Often see positive results

Efficacy Studies