Adult Aural Rehabilitation: Practical Approaches to Maximizing Benefit

Michael Douglas, MA, CCC-SLP, Cert AVT
Aural Rehabilitation Manager

Disclosure

Michael Douglas,
MA, CCC-SLP, LSLS Cert AVT
Manager of Aural Rehabilitation
Michael is employed with MED-EL
Course Objectives

• Define aspects of adult hearing-related predicaments

• List three assessment methods that expose pre rehab needs and demonstrate post rehab effectiveness

• Describe a multi-dimensional holistic approach to aural rehabilitation

• List at least three practical solutions that can help address the post sensory management needs of adults who have hearing loss
Why support AR for Adults?

Adult Hearing Loss

- Age 45-54: 18%
- Age 65-74: 30%
- 75+: 47%
Age

# with HL

Positive Correlation

Older Adults

Older Population Increasing 25%

Health problems and issues related to low SES or low education

(Lyman, 2006)
Is AR for Adults Effective?

**YES!**

- Passive
- Active
  - So
  - Much
  - Faster

Objectives

- Review Framework of Assessment
- Review Framework of Adult Aural Rehab
- Offer Practical Solutions
- Relate to a Case Example

(Boothroyd, 2007; Tye-Murray, 2014)
Goal Of Aural Rehabilitation

Conversational Fluency

Hearing-related Predicament

(Tye-Murray, 2003; 2014)

Hearing-Related Disability/Predicament

Function Activity
Participation Quality Of Life

(World Health Organization, 2001)
How is that measured?

- Interview
- Auditory Perception Testing
- Questionnaires
- Observations

Auditory Perception Testing

- Detection
- Discrimination
- Identification
- Comprehension

(Erber, 1984)

Questionnaires

Hearing Implant Sound Quality Index (HISQI)
Questionnaire for Subjective Sound Quality Detection

Munich Music Questionnaire
For people with and without hearing aid devices
Observations

Cochlear Implant Management Skills (CIMS)

Observations

Conversational Fluency

Oh yeah that sure was funny!

Remember the Carol Burnett Show?

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(Tye-Murray, 2014)

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(Bennet, et al, 2016)
Would you like to take a yoga class?

Huh? Pour a glass?

Monologue

Conversational Fluency

Conversational Fluency
Observations

Conversational Fluency (Tye-Murray, 2014)

Passive \ bluffs

monologue

Conversational Fluency

Mean Length Turn

Joan: Has your new furniture arrived yet?
Ann: Yes and I’m thrilled with it
Joan: You said that it was going to be French regency.
Ann: No, I didn’t go with that. My husband wanted a deco look

Joan’s MLT = # words/# utterances
Ann’s MLT = # words/# utterances

Mean Length Turn Ratio:
High or Low Conversational Fluency?
Mean Length Turn

Joan: Has your new furniture arrived yet?
Ann: Huh?
Joan: Your furniture?.
Ann: Looks around, shakes head
Joan: How are you doing? How is your Husband?...Tom?
Ann: Fine

Joan’s MLT = # words/# utterances
Ann’s MLT = # words/# utterances

Mean Length Turn Ratio:
High or Low conversational fluency?

Observations

Speech Reading Assessment in Noise

Auditory Only  Auditory + Visual
Auditory-Only Speech Identification in Noise

Observations
Noisy Auditory Only Condition
Observe Strategies Used

% Repeat
% Rephrase
% Key Word

Developing Plans
Patient Complaints + Assessment Results = AR Plan
Holistic Framework

(Boothroyd, 2007)

Activities

(Boothroyd, 2007; Tye-Murray, 2003)
Delivery of Services

Formal Instruction

Guided Practice

Real World Practice

(Witt, 1997)

Device Instruction
Device Instruction:

1. Teach
2. Model
3. Coach
4. Challenge
5. Review

Device Instruction: Real World Practice

1. Interview
2. Discover situations
3. Client commits
4. Follow up
Perceptual Training


Two Types

Perceptual Training

- Analytic Training
- Synthetic Training
- Conversational Fluency
**Bottom up Perceptual Training**

**Synthetic Training**
(McClatchie & Therres, 2003)

- Comprehension B
- Comprehension A
- Identification
- Discrimination
- Awareness

**Analytic Training**
(Fu, Nogaki & Galvin, 2005)

**Conversational Fluency**

**Analytic Examples**

- whom
- hot
- hood
- hip
- heat
- ham

- A-B-X
- Heat vs. hoof
- Sand vs. Sam

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Top Down Perceptual Training

Incoming Spoken Message

Prior Knowledge, learned strategies & Context

Makes Inferences

(Fu & Galvin, 2007)

Synthetic Training

(Fu & Galvin, 2007)
Synthetic Training: Speech Tracking

Top Down & Bottom up
Perceptual Training

- Personal Info
- Common Info
- Uncommon Info

Closed set – bridge set – open set
### Perceptual Training

<table>
<thead>
<tr>
<th>Easier</th>
<th>Harder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closed Set</td>
<td>Open</td>
</tr>
<tr>
<td>Words</td>
<td>Complete Sentences</td>
</tr>
<tr>
<td>Dissimilar</td>
<td>Similar</td>
</tr>
<tr>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Structured</td>
<td>Spontaneous</td>
</tr>
<tr>
<td>Good</td>
<td>Poor</td>
</tr>
</tbody>
</table>

- **Stimulus Set**
- **Stimulus Unit**
- **Stimulus Similarity**
- **Context**
- **Task**
- **Signal-to-Noise Ratio**

*(Tye-Murray, 2014)*

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### Direct Audio Input

- **Live Voice:**
  - Familiar Voices vs Unfamiliar voices

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Perceptual Training

Computer Devices

Telephone

How the Training is Completed Matters

Bottom Up

Top Down

Comprehension B
Comprehension A
Identification
Discrimination
Awareness

Analytic

(Fu & Galvin, 2007)

Synthetic

Incoming Spoken Message
Listener Uses Prior Knowledge + Context
Makes Inferences

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Conversational Fluency

- Clear Speech
- Repair Strategies
- FCP Training

(Witt, 1997)
Telephone Training

Acoustic Routing Strategies

• Useful tips and encouragement

Familiar Persons
• Familiar Topics

Structured Tasks
• Short passages, current events

Real World Practice with coaching then independent

Adult Aural Rehabilitation

WHO PAYS?

WHAT’S THE TIME COMMITMENT?
Depending on a Variety of Factors, Continued Improvements May be Seen

2 year post

&

5 year post

In the older adult

(Holden et al, 2013; Dillon, 2013)
Perceptual Training Resources

- Auditrain: USB
- Syntrain: USB

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Adult Aural Rehabilitation

Counseling

Types of Counseling

- Informational
- Assertiveness Training
- Personal Adjustment
Informational

Goal:
Facilitate learning about HL and solutions

Outcome:
Higher Understanding

(Tye-Murray, 2014)
Assertiveness Training

**Goal**
Increase cooperation and equality between talkers

**Outcome**
Use of neutral, non-aggressive behaviors that enhance communication

(Tye-Murray, 2014)

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Personal Adjustment

**Goal**
Decrease negative feelings and increase self-worth & acceptance

**Outcome**
Improved self-image and participation

(Tye-Murray, 2014)
**Evidence for a Holistic Approach**

<table>
<thead>
<tr>
<th>Goal</th>
<th>Function</th>
<th>Activity</th>
<th>Participation</th>
<th>Quality of Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensory Management</td>
<td>*</td>
<td>*</td>
<td>*?</td>
<td>*?</td>
</tr>
<tr>
<td>Device Instruction</td>
<td>*</td>
<td>*</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Perceptual Training</td>
<td>X</td>
<td>*?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Counseling</td>
<td>X</td>
<td>X</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>HOLISTIC</td>
<td>*</td>
<td>*</td>
<td>*</td>
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(Boothroyd, 2007; Tye-Murray, 2014)

**In review...**

Holistic Framework

(Boothroyd, 2007)
Holistic Framework of Aural Rehab improves one’s Function, Activity, Participation, and Quality of Life.

(Boothroyd, 2007)

Goal Of Aural Rehabilitation

Conversational Fluency

Hearing-related Predicament

(Tye-Murray, 2003; 2014)
Adult Rehabilitation
Challenges
Challenges
Practical Solutions

- Involve other Disciplines
- Demonstrate Compensatory Resources
- Cultivate Community Partnerships
Involve other Disciplines

- Informational Counseling
- Device Instruction
- Perceptual Training
- Communication Strategy Training
Demonstrate Compensatory Resources

Customized Learning Exercises for Aural Rehabilitation
Demonstrate Compensatory Resources

http://www.medel.com/us/soundscape/

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Demonstrate Compensatory Resources

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Demonstrate Compensatory Resources

**Set Goals.**
- Hear Now

**Practice Alone**
- Hear at Home

**Practice with a partner.**
- Listening Up

Cultivate Community Partnerships

- Host space for industry sponsored events
- Host meeting with local HLAA Chapter
- Host party with local AG Bell Chapter
- Partner with University SLP student clinics
Cultivate Community Partnerships

Awareness  Learning  Choosing  Getting  Living

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FOR MED-EL USERS & CANDIDATES

EXPAND your hearing experiences with assistive listening technology

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Case Example
Case Example

“We really don’t have any money in our budget for extra staff or materials. We do have a few patients who are struggling with speech perception; especially in noise and on the telephone. I’ve done everything possible with their CI maps, even had my rep come out to verify everything with me. We’ve given our patients brochures on what they can do, and have had some discussions, but that doesn’t seem to be very satisfying or completely helpful. My schedule is booked with device fittings and evaluations. I’d just like to find a way to get my patients the help they need.”

Objectives

Reviewed Framework of Assessment

Reviewed Framework of Adult Aural Rehab

Offered Practical Solutions

Discussed Solutions for a Case Example

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## Reflect

**Questions:**
- What are you currently doing?
- What will you try now?
- Other Questions?
- What will you do to find out?

### Call to Action

<table>
<thead>
<tr>
<th>What are you currently doing?</th>
<th>What will you try now?</th>
<th>Other Questions?</th>
<th>What will you do to find out?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensory Management And Device Instruction</td>
<td>Encourage and demonstrate home Practice. Find other Disciplines to Partner with or Refer to</td>
<td>How to start Group Sessions</td>
<td>Contract Industry Reps Contact Local University</td>
</tr>
</tbody>
</table>
Final Considerations

Patients predicaments change over time, so the aural rehabilitation plan must be fine-tuned and adjusted as it unfolds.