

Critically Appraised Topic 2: Post-fit Aural Rehabilitation (AR)

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PICO

- Do adult hearing aid users who receive counseling-based AR treatment achieve greater benefit than hearing aid users who do not as measured by a hearing handicap outcome measure?

Search Results: Articles Included

- Hawkins, 2005
 - Location: USA
 - Comparison: Effectiveness of counseling-based adult group aural rehabilitation programs
 - Control: Historical
 - Number of studies: 13
 - Outcomes: HHIE/A, Hearing Coping Assessment, Quantified Denver Scale of Communication Function, Questionnaires, video observation, etc.

Search Results: Articles Included

- Rubinstein, 1987
 - Location: USA
 - Comparison: AR with sentence perception, perceptual strategy, and consonant recognition vs. AR with sentence perception and perceptual strategy, only
 - Control: Concurrent
 - Number of patients: 20
 - Outcomes: CUNY Nonsense Syllable Tests (NST), low predictability items of Revised Speech Perception in Noise (RSPIN) test, high predictability items of RSPIN

Hawkins: Background

- Purpose
 - Examine effectiveness of counseling and communication strategy oriented group AR
- Inclusion and Exclusion Study Criteria
 - Adults with hearing impairment
 - Group AR
 - Randomized control trial, quasi-experimental, or non-intervention cohort with appropriate sample size
 - Appropriate outcome measure
 - Publication in refereed journal

Hawkins: Background

- Search Strategy
 - 3 search engines
 - ComDisDome
 - PubMed
 - Cumulative Index to Nursing and Allied Health Literature
 - Reference Lists from critical articles
 - References from AR textbook and AR review
 - “Three prominent audiologists actively involved in adult AR research were contacted and their reference lists for adult AR were obtained.”
 - Robyn Cox, Pat Kricos, and **Harvey Abrams!!!**

Hawkins: Results and Conclusion

- Type of Outcome Measure
 - Must reflect the expected change that is hypothesized to result from the treatment that is being applied
- Short vs. Long-Term Assessment
 - Time period at which benefit from AR group assessed
 - 4 months or less showed benefit
 - 1 to 2 years showed no significant benefit
- Number of Subjects
 - Studies included 10 to 53 subjects
 - Need for more studies with larger number of subjects

Hawkins: Results and Conclusion

- Participation in AR provides short-term reduction in self-perceived handicap
 - Unclear if reduction persists over time

Rubinstein: Background

- Purpose: To determine whether
 - Performance on tasks of speech recognition would improve in response to training
 - The inclusion of analytic tasks in the training program would produce more improvement than found with synthetic tasks alone
 - Any benefits of training would be revealed in both analytic and synthetic measures of speech perception
 - Any measured improvements would be retained after training ended

Rubinstein: Background

- Subjects
 - 20 adults
 - Aged 56-79 years
 - Post-lingually acquired SNHL
 - HA owners
 - SRTs not greater than 65 dB HL
 - 2 groups formed by matching criteria
 - Synthetic approach to auditory training
 - Synthetic plus analytic approach to auditory training
 - See Table 1

Rubinstein: Background

TABLE 1. Descriptive and audiometric data for the two experimental groups.

	SS	SA	<i>t</i> ^a
Mean pure tone average, in dB	44.4	44.7	-0.06
Standard deviation	13.4	9.0	
Mean aided speech discrimination score, (% correct)	76.6	74.0	0.36
Standard deviation	16.6	15.2	
Mean age (in years)	70.8	68.3	0.08
Standard deviation	6.2	8.2	
Mean duration of hearing loss, (in years)	10.0	8.9	0.47
Standard deviation	6.4	5.8	
Slope of hearing loss, in number of subjects			
Flat	3	4	
Gradual Slope	4	3	
Sharp Slope	3	3	
Duration of hearing aid usage, in number of subjects			
3-6 months	3	3	
7-12 months	1	1	
over 1 year	6	6	
Education, in number of subjects			
reached JHS	0	1	
reached HS	4	3	
reached college	6	6	
Language			
native speaker	9	9	
acquired during early adolescence	1	1	

Note. SS = synthetic only group; SA = synthetic plus analytic group.

^adf = 18, *t* values were not statistically significant at .05 level.

Rubinstein: Background

- 3 Tests
 - CUNY NST
 - Low predictability items of RSPIN
 - High predictability items of RSPIN
- Test Procedure
 - In sound treated booth with own HAs
 - Individuals tested at 4 times
 - Beginning of study
 - After 4 weeks of no treatment
 - After 4 more weeks of AR
 - After 4 more weeks of no treatment

Rubinstein: Background

- Training Procedure
 - Eight 1-hr private sessions over 4 weeks
 - Synthetic Training (All)
 - Discuss factors of successful communication and means to improve listening
 - Provide listening practice based on discussion
 - Analyze and discuss errors in individual listening strategy
 - Analytic Training
 - Improve consonant recognition ability

Rubinstein: Results and Conclusion

- AR resulted in significant improvement in speech recognition performance
 - No significant difference in performance between groups
- Improvements from AR were not lost 1 month after AR ceased
- Results support use of AR

Methodology: Quality of Studies

- Hawkins, 2005
 - Level 1: Evidence obtained from Systematic Review
 - Participants: Adults with hearing impairment
 - Materials: Objective and subjective tests
 - Procedures: Potential bias from not all studies being randomized. The groups may not have been similar and treated equally.

Methodology: Quality of Studies

- Rubenstein, 1987
 - Level 3: Evidence obtained from well-designed Pseudo-Randomized Control Trials
 - Participants: Adults with hearing impairment
 - Materials: Objective tests
 - Procedures: Potential bias from not being randomized. The groups may not have been similar and treated equally.

Summary of Findings

- Identified one systematic review and one comparative study
 - Both evaluated the effectiveness of aural rehabilitation for hearing-impaired adults who wear hearing aids
- No significant difference between synthetic vs. synthetic/analytic AR

PICO Conclusion

- The studies included in this CAT found:
 - Adult hearing aid users who receive AR treatment achieve greater benefit than hearing aid users who do not
 - Measured by multiple subjective and objective hearing handicap outcome measures

References

- Cox, R. (2005). Evidence-based practice in provision of amplification. *Journal of American Academy of Audiology*, 16, 419-438.
- Hawkins, D. (2005). Effectiveness of counseling-based adult group aural rehabilitation programs: a systematic review of the evidence. *Journal of American Academy of Audiology*, 16, 485-493.
- Rubinstein, A. & Boothroyd, A. (1987). Effect of two approaches to auditory training on speech recognition by hearing-impaired adults. *Journal of Speech and Hearing Research*, 30, 153-160.