

Critically Appraised Topic 1

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PICO

- Do new hearing aid users who have utilized hearing aids for an acclimatization period and receive aural rehabilitation treatment perceive significant benefit over new hearing aid users who have utilized hearing aids for an acclimatization period and do not receive aural rehabilitation treatment?

Search Results: Articles Included

- Yund, 2006
 - Location: USA
 - Comparison: Wide dynamic range multichannel compression (WDRMCC) vs. Linear amplification (LA)
 - Control: Concurrent
 - Number of patients: 39
 - Outcomes: Nonsense syllable perception in speech spectrum noise tests (NST), Questionnaires

Search Results: Articles Included cont

- Philibert, 2001
 - Location: France
 - Comparison: Long term bilateral HA users vs. non HA users
 - Control: Concurrent
 - Number of patients: 18
 - Outcomes: Intensity tasks
 - Discrimination-limen-for-intensity task (DLI)
 - Loudness-scaling task

Yund: Background

- Purpose:
 - To examine acclimatization difference between LA and WDRCC HA users
- Subjects:
 - Inexperienced HA users
 - Sloping bilateral symmetrical normal to moderately-severe SNHL
- HAs:
 - ITC GN ReSound Centra 730
 - ITC Sonic Innovations Altair

Yund: Background cont

- HA fitting:
 - WDRMCC fitting procedure following manufacturer's recommendations
 - LA: NAL-R
- Nonsense Syllable Test Procedures
 - NST performance tested at weeks 0, 1, 2, 4, 8, 16, 32 (phase 1)
 - Then fitting switched and tested at weeks 0, 1, 2, 4, 8 (phase 2)
- Questionnaires
 - PHAB tested at week 0
 - PHAB and HAPI tested at weeks 2, 8, 32 (phase 1)

Yund: Results and Conclusion

- Questionnaires
 - No significant improvement over time
- NST: Phase 1
 - Lack of acclimatization for LA
 - Acclimatization for WDRMCC during the first 8 weeks of HA experience
 - No continued changes at weeks 16 and 32
- NST: Phase 2
 - Lack of acclimatization for WDRMCC following LA
 - LA experience limits ability to use more natural speech cues

Philibert: Background

- Purpose:
 - To compare two intensity perception performances between long-term binaural HA users and non-HA users with similar hearing loss in both ears
- Subjects:
 - Sloping bilateral symmetrical normal to profound SNHL
 - Experienced HA users
 - Use HAs ~ 1 to 5 years for at least 8h per day

Philibert : Results and Conclusion

- Loudness-scaling task results:
 - Differ significantly between groups according to frequency and category being rated
- DLI task results:
 - No statistically significant results
- Conclusion:
 - Significant differences exist in loudness perception between long-term HA users and non-HA users

Methodology: Quality of Studies

- Yund, 2006
 - Level 2: Randomized Control Trials
 - Participants: Similar hearing loss
 - Materials: Objective and subjective tests
 - Procedures: Potential bias with ending testing early

Methodology: Quality of Studies

- Philibert, 2001
 - Level 3: Non-randomized Intervention Studies
 - Participant: Amplification varied
 - Materials: Objective tests
 - Procedures: Potential bias because non-randomized

Summary of Findings

- Identified 2 comparative studies
 - Both evaluated how the benefit for hearing aid users is affected by:
 - Acclimatization
 - Aural Rehabilitation

Conclusions

- The studies included in this CAT found:
 - Hearing aid benefit can increase with acclimatization and aural rehabilitation
 - However, the included studies have potential for bias

References

- Cox, R. (2005). Evidence-based practice in provision of amplification. *Journal of American Academy of Audiology*, 16, 419-438.
- Philibert, B., Collet, J., Vesson, F., & Veuillet, E. (2001). Intensity-related performances are modified by long-term hearing aid use: a functional plasticity? *Hearing Research*, 165, 142-151.
- Yund, E., Roup, C., Simon, H., & Bowman, G. (2006). Acclimatization in wide dynamic range multichannel compression and linear amplification hearing aids. *Journal of Rehabilitation Research & Development*, 43, 517-536.