



Impact of hearing aid technology on outcomes for older adults

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Levels of Hearing Aid Technology



Some features differ for premium and basic hearing aids

Premium

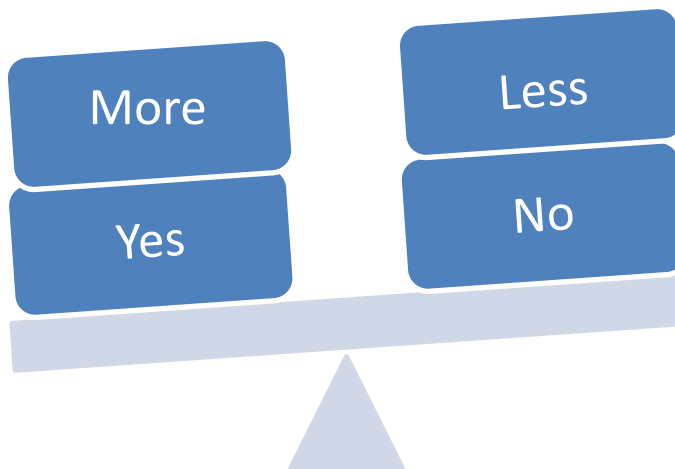
Basic

More

Less

Yes

No



Purpose

- This research evaluated exemplars of basic and premium hearing aid technology from two major hearing aid manufacturers with the goal of evaluating outcomes in the laboratory and in the real-world.

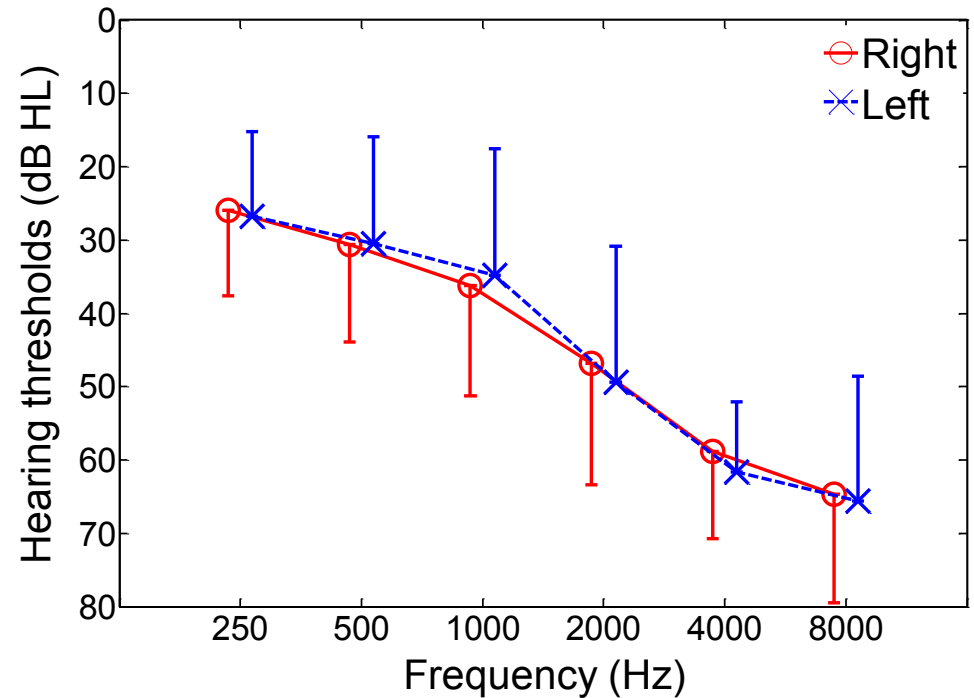
Research Questions

In the laboratory and in daily life, are outcomes:

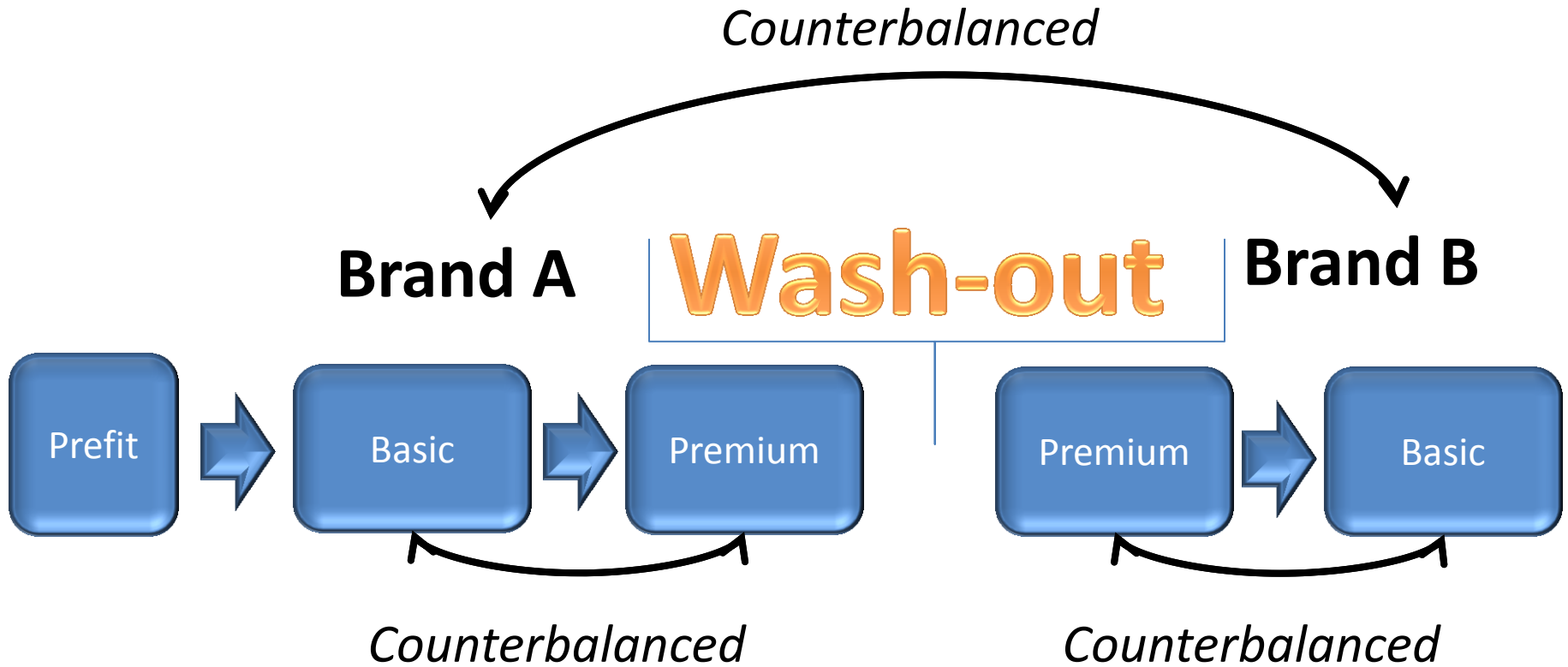
1. Better with hearing aids compared to without?
2. Better with examples of premium hearing aids compared to basic?

Participants

- 45 participants (30M, 15F)
- Age: 61 to 81 (M=70.3, SD=5.5)
- Symmetric mild to moderate sensorineural hearing loss
- English as first language




Design (e.g.)



Hearing aid fittings

- Bilateral, with appropriate coupling
- Individualized fittings using best-practice protocols, starting with NAL targets
- Features set to manufacturers' recommendations.
- 3 manually selectable programs:
 - “everyday” - default automatic
 - “look and listen” - fixed front-facing directional
 - “speech finder” - for 360° listening

Summary of Results

Outcome	Is result with Aided better than Unaided?	Do premium features give better results than basic?
Quality of Life, Everyday Hearing¹	Yes.	No. Results were equal across technologies.
Patient Preference¹	-	No. There was not an overall trend for preferring premium features over basic.
Speech understanding²	Yes, in lab and daily life.	No, results were equal.
Listening effort²	Yes, in lab and daily life.	No, results were equal.
Localization³	No difference in lab. Yes, in daily life.	Yes, when listening to high frequency sounds in quiet in the lab. All other results were equal. 
Sound Acceptability <i>(unpublished)</i>	Mostly no differences in the lab. Yes, in daily life.	No. Acceptability was not improved with premium technology.

These findings apply for...

- People like those included in our study.
- Devices like those included in our study.
 - This is a comparison of select technologies at a given moment in time.
 - 2 brands of BTE aids from two manufacturers, released into the market in 2011.
 - Currently, cost of premium > basic, but we have presented evidence that these devices did not result in better performance for typical older hearing aid candidates.
 - We do not claim that this outcome will hold for all brands of all manufacturers at all points in time; however, payers should remain skeptical about device benefits without independent proof of real-world effectiveness.

Considerations

- There is evidence of improved patient experiences with hearing aid technology over time.⁴
- Yet differences in technology used for this study made very little difference in terms of daily life outcomes for our participants.

Considerations

- Trained audiologists are equipped with the skills and knowledge necessary to provide competent professional best hearing health care practices.
- Yet, today's hearing aid fitting practices are shaped by:
 - Reliance on technology to manage hearing problems.
 - A lack of current, independent evidence about the effectiveness of different hearing health devices
 - Concerns about the financial practicality of providing evidenced-based rehabilitative services.
- Change is needed.

References

1. Cox, R., Johnson, J., & Xu, J. (2016). Impact of hearing aid technology on outcomes in daily life, I: The patient's perspective. *Ear & Hearing, 37* (4), 224-237.
2. Johnson, J. Xu, J., Cox, R. (2016). Impact of hearing aid technology on outcomes in daily life, II: Speech understanding and listening effort. *Ear & Hearing, 37* (5), 529-540.
3. Johnson, J., Xu, J., & Cox, R. (in review). Impact of hearing aid technology on outcomes in daily life, III: Localization in quiet and in noise.
4. Abrams, H., Kihm, J. (2015). An introduction to MarkeTrak IX: A new baseline for the hearing aid market. *Hearing Review, 22* (6), 16.

Acknowledgement

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