

INTRODUCTION

In open-fit hearing aids, the interaction between the direct and proc sound leads to comb-filtering and, thus, coloration effects [1]. The magn of these effects depends on the level difference between the direct processed sound and the processing delay. A critical issue for hearing (HA) uptake is the **perception of one's own voice** [2, 3].

Using own voice as the test stimulus, the current study aimed to investig 1) How specific sound attributes, measured using the Own Voice Qua

(OVQ) questionnaire [4], are affected by short and long processing de

2) If a short processing delay is preferred over longer processing delays





Figure 1. Proportion-preferred scores as a function of processing delay. Error bars show ± 1 standard error. (a) Data from HL group (green squares) and NH group (open black squares). (b) HL group divided based on HA experience. Experienced users are shown in orange (n = 12) and inexperienced users in blue (n = 5).

[1] Stone, M. A., Moore, B. C., Meisenbacher, K., & Derleth, R., P. (2008). Tolerable Hearing Aid Delays. V. Estimation of Limits for Open Canal Fittings. Ear & Hearing, 29 (4), 601-617 [2] Kochkin, S. (2000). MarkeTrak V: "Why my hearing aids are in the drawer": The consumers' perspective. *The Hearing Journal*, 53 (2), 34, 36, 39-41 [3] Hengen, J., Hammarström, I. L., & Stenfelt S. (2020). Perception of One's Own Voice After Hearing-Aid Users and Hearing-Aid Refitting for Experienced Users. Trends in Hearing, 24, 1-17 [4] Laugesen, S., Jensen, N. S., Maas, P., & Nielsen, C. Own Voice Qualities (OVQ) in hearing-aid users: There is more than just occlusion. *International Journal of Audiology*, 50 (4), 226-236 [5] Bisgaard N., Vlaming M. S. M. G., & Dahlquist, M. Standard Audiograms for IEC 60118-15 Measurement Procedure. Trends in Amplification, 14 (2), 113-120

OWN-VOICE PERCEPTION AS A FUNCTION OF PROCESSING DELAY IN OPEN-FIT HEARING AIDS

Borgný Súsonnudóttir^{1,2,3,*}, Anne Roslyng-Jensen¹, Eline Borch Petersen³, Lars Dalskov Mosgaard³, Georg Stiefenhofer³ & Tobias Neher^{1,2}

¹ Department of Clinical Research, Faculty of Health Sciences, University of Southern Denmark, Odense, DK ² Research Unit of ORL – Head & Neck Surgery and Audiology, Odense University Hospital & University of Southern Denmark, Odense, DK

³ WS Audiology, Lynge, DK

*Corresponding author: <u>borgny.hansen@wsa.com</u>

The sound of my own voice is a The sound of my own voice is a

RESULTS



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audiogram [5]

Figure 2. OVQ scores from sections A, B, and C for 0.5-ms processing delay on the abscissa and 10-ms processing delay on the ordinate. Dashed lines illustrate difference scores of \geq 4 between 0.5- and 10-ms processing delay. The **top panel** shows data from the HL group (green) and NH group (black). The **bottom panel** shows data from the experienced HA users (orange) and inexperienced HA users (blue).

METHODS

UESTIONNAIRE

tested: 0.5 and 10 ms

and response scale

Strongly	0
disagree	1
	2
Somewhat	3
disagree	
	5
Neutral	6
	7
	8
Somewhat	9
agree	10
Strongly	11
agree	
	12
	Strongly disagree Somewhat disagree Neutral Somewhat agree Strongly agree

PREFERENCE SCORES

Task:

• Forced-choice pairwise comparison

Processing delays tested:

- 0.5, 5, and 10 ms
- Three repetitions = 9 comparisons

Own voice production:

• Free speech • Short text • Rhymes

Figure 3. Overall preference: (a) OVQ scores for HL group (green squares) and NH group (white squares). (b) Experienced HA users (orange squares) and inexperienced HA users (blue squares). (c) Bar plot of overall preference in percent for short (0.5 ms) or long (10 ms) processing delay.



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DISCUSSION AND CONCLUSION

- Study is ongoing, so results are preliminary
- In terms of preference scores, the NH participants show a clear
- preference for the 0.5-ms delay. For the HL participants, the preference pattern less clear.
- Possible trend that inexperienced HA users show different preference
- pattern than experienced HA users. However, inexperienced subgroup still too small for any conclusions to be drawn.
- In terms of overall preference, all NH participants and most HL
- participants expressed a preference for the 0.5-ms delay.

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International Hearing-Aid Seminar International Hearing-Aid Research Conference

