



THE UNIVERSITY OF  
MELBOURNE

# Reducing Tinnitus with Hearing Aids: Does the Lyric Offer a More Effective Option?

**Dominic Power, Dr Dani Tomlin, Prof. Richard Dowell**  
Department of Audiology & Speech Pathology

## BACKGROUND

Hearing aids have been widely used in the relief of tinnitus for those with 'aidable' hearing loss. Appropriate amplification through hearing aids provides missing auditory information for the auditory pathway to process, diverting attention from tinnitus. When the hearing aids are removed, such as while sleeping, the tinnitus can return and continue to be problematic. Being able to provide amplification continually throughout the day and night may offer additional relief. This study investigated whether providing amplification continually using the Lyric hearing aid offered greater reduction of tinnitus compared with that offered through amplification alone, or with the addition of a masking noise (combination device).

The study aimed to guide clinicians in recommending the most appropriate amplification solutions for the management of Tinnitus.

## METHODS

Thirty three participants with self-reported bothersome tinnitus and at least a mild hearing loss were included in the study. All had initial scores of 20 or higher on their Tinnitus Functional Index (TFI) measures indicating at least a Small Problem. Audiometry and tinnitus pitch and loudness matching were conducted at baseline, 1 month and at 3 months (conclusion). Participants were allocated to the **Lyric** treatment group depending on their clinical suitability and interest in extended wear hearing devices. Those who were unsuitable for Lyric or not wanting an extended wear option were allocated to the hearing aid group and Phonak Audéo **B90** 312 hearing aids were fitted. If the tinnitus was not partially or fully masked by the hearing aids, the addition of a masker was included, and they were allocated to the **Masker** group. There were 11 participants in each group. All hearing aids were configured using the NAL-NL2 prescription and matched to the NAL-NL2 insertion gain targets where possible. The TFI was repeated at 1 and 3 months and results analysed. Differences in TFI scores were evaluated at one month and at three months across the three groups.

### References:

Henry, J.A. Griest, S., Thielman, E., McMillan, G., Kaelin, C. & Carlson, K.F. (2015) Tinnitus Functional Index: Development, validation, outcomes research, and clinical application. *Hearing Research* 334, 58-64.

Henry, J.A., McMillan, G., Dann, S., Bennett, K., Griest, S., Throderoff, S., Silverman, S.P., Whichard, S. & Saunders, G. (2017) Tinnitus Management: Randomized Controlled Trial Comparing Extended-Wear Hearing Aids, Conventional Hearing Aids, and Combination Instruments. *Journal of the American Academy of Audiology*

McNeill, C., Tavora-Virira, D., Alnafjan, F., Searchfield, G.D. & Welch, D. (2012) Tinnitus pitch, masking, and the effectiveness of hearing aids for tinnitus therapy. *International Journal of Audiology*.

Searchfield, G. D. (2018) Hearing and Combination Sound-Therapy aids for Tinnitus. *Tinnitus Today* Spring 2018

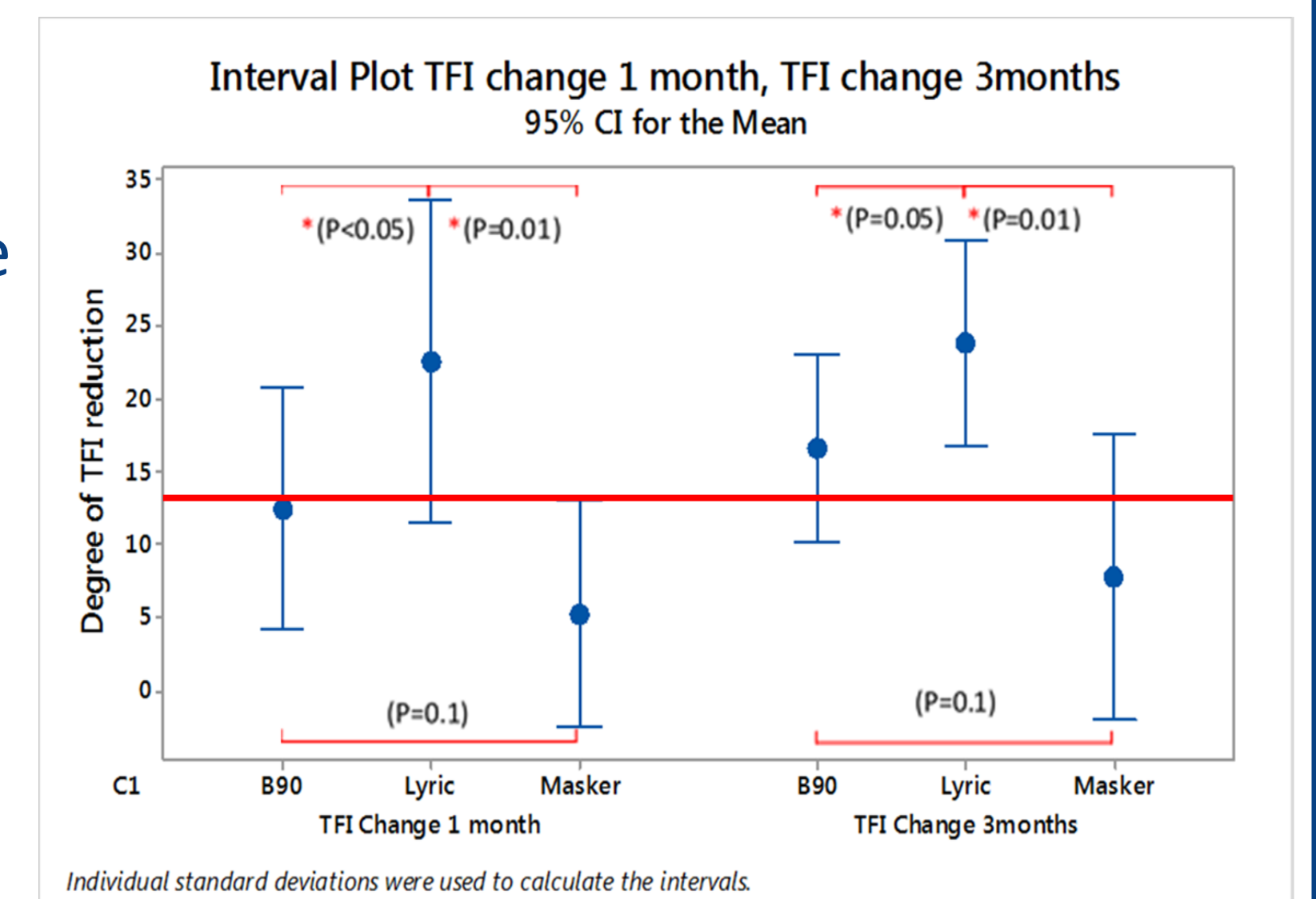
### Acknowledgements:

This study was conducted with the support of Sonova AG, Phonak Australia, Academic Hearing and the University of Melbourne Department of Audiology and Speech Pathology. The study was conducted independently once agreement was reached as to study design.

## RESULTS

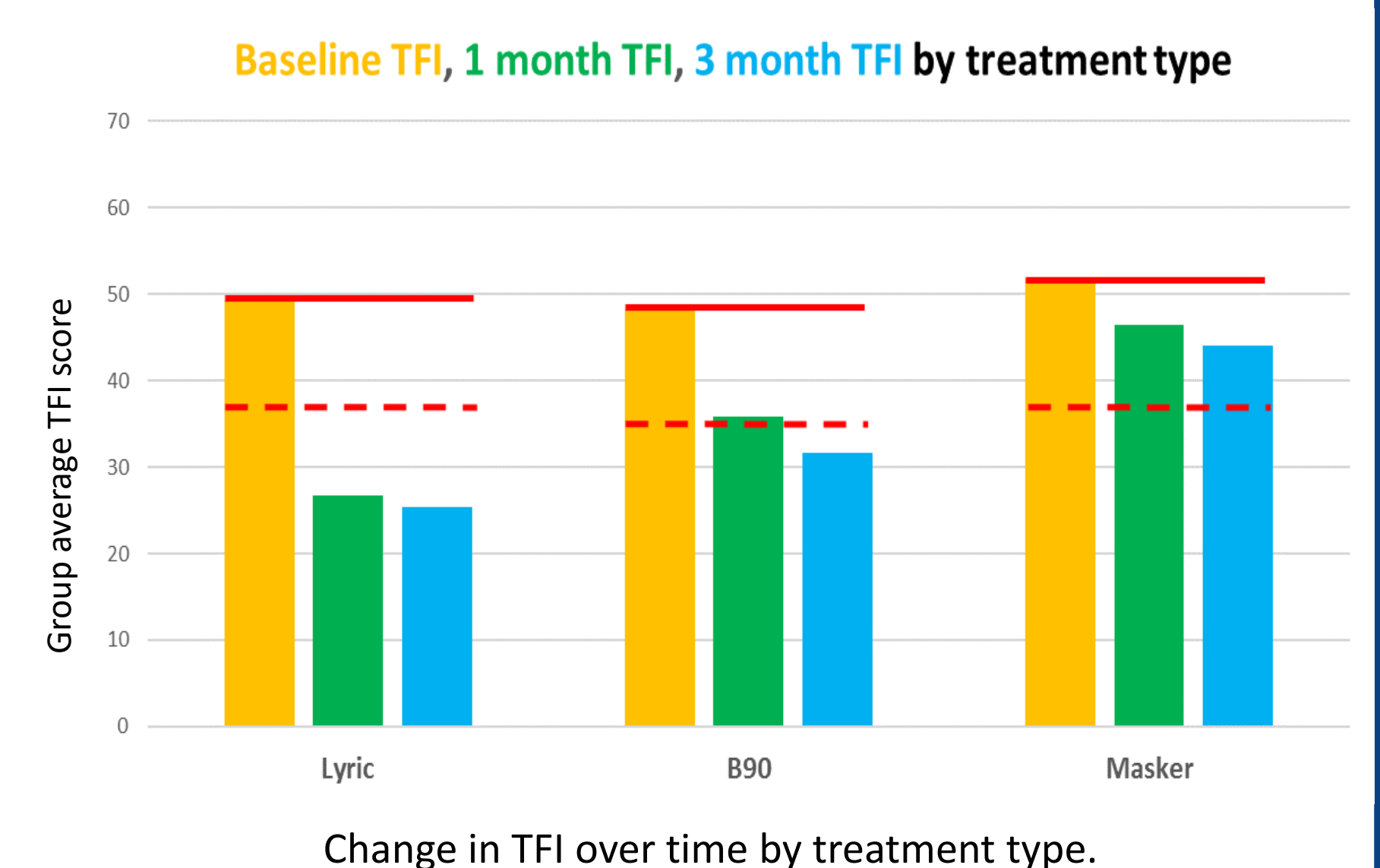
The Lyric group showed a significantly larger change at 1 and 3 months when compared to the other groups.

(The red horizontal line represents the 13 point change in TFI where clinically significant reduction in TFI lies).

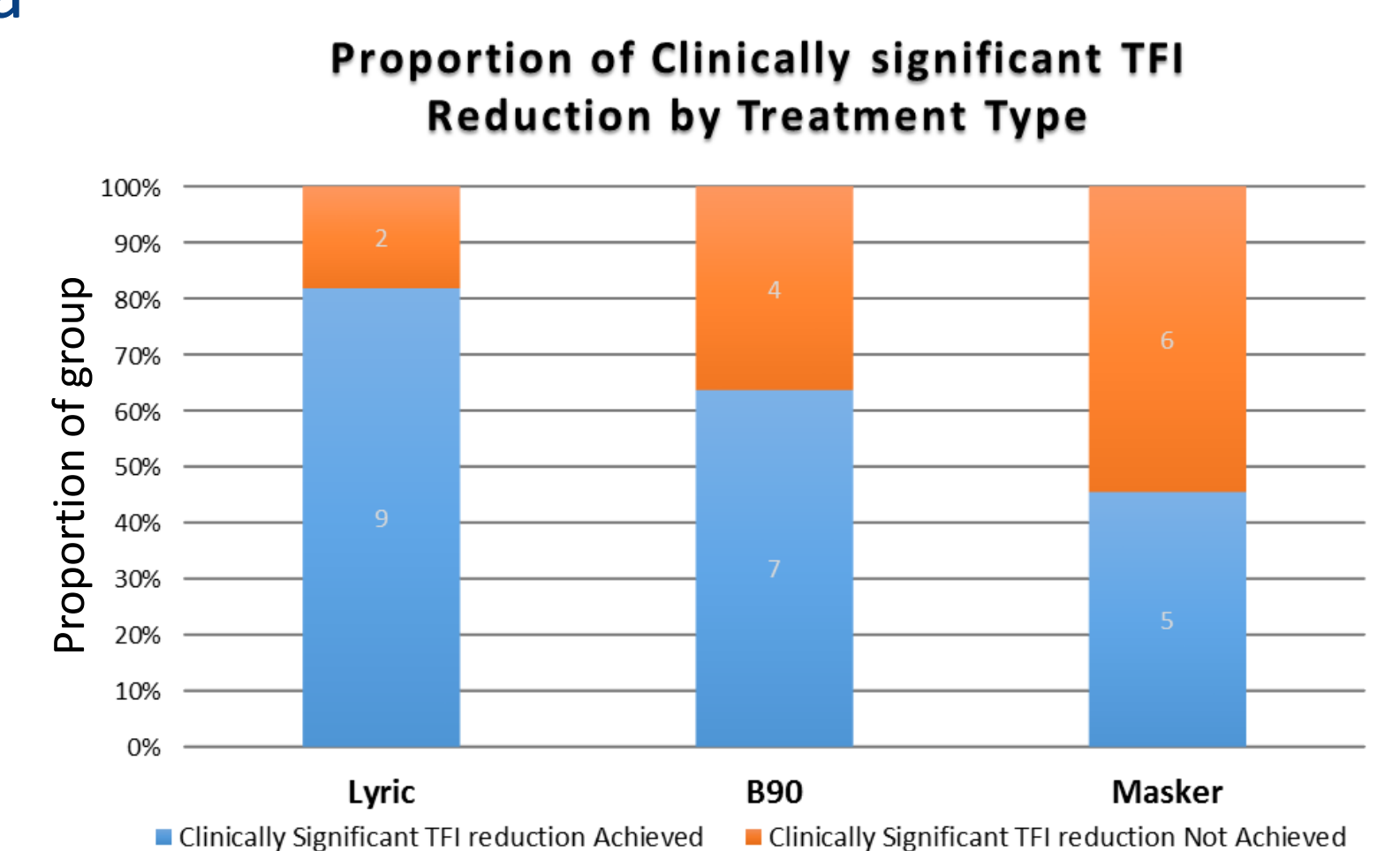


TFI reduction reached clinically significant levels faster in the Lyric group. This difference was maintained at 3 months

(Solid to dashed line represents 13 point – clinically significant - TFI reduction).



The Lyric group displayed a higher proportion of participants achieving clinically significant reduction in TFI compared to other groups. The difference was significant between the Lyric and Masker groups ( $Z=1.91$   $p<0.05$ ).



## CONCLUSIONS

The Lyric Group showed a faster, and greater magnitude of Tinnitus Functional Index reduction when compared to both the B90 and Masker groups. The Lyric group also displayed a higher 'hit rate' of clinically significant reduction in TFI scores.

Clinically based participant allocation was selected for this study design with the aim of having the results offer greatest clinical relevance.

**Lyric can be recommended by clinicians for those who are suitable Lyric candidates with bothersome tinnitus to facilitate faster and larger reduction in their tinnitus.**

NB. The results from the Masker group do not imply this is an inferior method for tinnitus reduction, but that those allocated to this group had a more difficult type of tinnitus to assist through amplification and noise generation.)