Tinnitus Balance and Phonak Audéo V
A study to assess integration of a new tinnitus management tool in an established tinnitus clinic

The objective of this multicountry study was to evaluate applicability and benefits of the Phonak Tinnitus Balance noise generator available in Phonak Audéo V, in an established clinical setting. The study was conducted with 54 subjects across five clinics (four in Brazil and one in Singapore). The results demonstrate that Phonak Audéo V with Tinnitus Balance significantly reduced tinnitus annoyance. All subjects reported moderate to substantial relief from tinnitus after 3 months. All audiologists reported that fitting the Tinnitus Balance noise generator using Phonak Target™ is easy and seamlessly integrates into their regular tinnitus management clinical protocol.

Introduction
Tinnitus is commonly known as a "head noise" or a "sound in the ears". It is defined as a phantom auditory perception – a perception of sound of varying intensity, loudness and pitch in the absence of an external sound (Jastreboff, 1990). It is reported that around 10-15% of the population suffer from tinnitus and in the majority it is persistent.

The incidence of tinnitus increases with age, with one in five people between 55 and 65 years old reporting some tinnitus symptoms (Demeester et al, 2007). Nosrati-Zarenoe et al. (2007) reported that 80% of people with tinnitus also have a hearing loss.

Sound enrichment, coupled with instructional counseling, is an established approach for tinnitus management. The underlying principle of sound enrichment is to provide supplementary noise stimulation which can help defocus the patient’s attention from their tinnitus and avoid negative reactions. Well-known tinnitus management philosophies such as Tinnitus Masking, Tinnitus Retraining Therapy and Progressive Tinnitus Management involve some form of sound enrichment with amplification as a common first step for those tinnitus patients also with hearing loss.

Methodology
There were 54 adult subjects aged between 28 and 74 years selected for the study, with varying degrees of hearing from normal hearing to severe hearing loss and tinnitus. The study was conducted across five clinics (four in Brazil and one in Singapore). Each clinic in Brazil included an ENT specialist and an audiologist and in Singapore an audiologist and tinnitus therapist.

The Tinnitus Handicap Inventory (THI) was used to assess the subjective degree of tinnitus. THI scores were recorded at the first appointment, at two weeks and at three months. A satisfaction survey was also completed by subjects at the two-week point. This survey consisted of four questions with multiple-choice answers. Finally, a questionnaire was completed by the audiologist to assess their impression of fitting the Tinnitus Balance noise generator in the Phonak Target™ fitting software.

Phonak Audéo V hearing aids were fitted according to the established protocol of each tinnitus clinic and the hearing loss of the subjects. The noise generator was used for all subjects.
Results and discussion

Fig. 1 shows the average THI scores at the first appointment and after three months of treatment. An average improvement of 13.5 points was seen across all the THI scores after 3 months usage of the hearing aid with integrated noise generator. In Brazil, 33 out of 44 subjects reported improved THI scores after 3 months. In Singapore, 6 out of 10 subjects reported improved THI scores in this timeframe.

![Average THI score](image)

Fig. 1 Average THI scores at the first appointment and after 3 months of treatment for the Brazil and Singapore subjects combined.

At selected points throughout the trial, subjects were asked to rate if they found that the hearing aid with noise generator improved their feeling towards their tinnitus and if they felt satisfied. Figure 2 illustrates the answers to that question. After three months almost all subjects reported an improved feeling towards their tinnitus.

![Subjects](image)

Fig. 2 Subjects were asked if they were satisfied with the new tinnitus hearing device, and their answers are here plotted in correlation to the elapsed time. With regards to satisfaction, 80% of the subjects were very satisfied.

![Subjects](image)

Fig. 3 Subjects were asked if the new tinnitus hearing device improved their feeling of tinnitus, and their answers are here plotted in correlation to the elapsed time. After 3 months most of the subjects reported an improvement.

It should be noted that out of the 10 subjects in Singapore, 4 subjects had very low initial THI scores indicating a slight to mild handicap, and these subjects reported subjective improvement in tinnitus soon after fitting. However their status remained unchanged as after 2 weeks use as their THI scores were already within the lowest range. This is in contrast to the Brazil group where the initial THI scores were higher. For 5 subjects the initial THI score was between 80 and 100 points which indicates a severe handicap. Although the average improvement was very similar to the Singapore group some individual score improvements were very large; for example one subject’s score improved by 32 points after two weeks.

Conclusion

This study has shown that the Tinnitus Balance noise generator in Phonak Audéo V, when used within an established tinnitus clinic, reduced the annoyance of tinnitus significantly. 80% of subjects reported moderate to substantial relief from tinnitus and a self-perceived improvement in their well-being. The participating audiologists reported a faster reduction in THI scores than with other products they had previously used which was identified as a future topic for further investigation. The audiologists also reported ease of use in fitting the Tinnitus Balance noise generator and they did not need to make any adaptations to their regular clinical protocol to accommodate the new product. All audiologists reported they felt confident making adjustments to the Tinnitus Balance noise generator in the Phonak Target™ fitting software.

References


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