

ABSTRACT

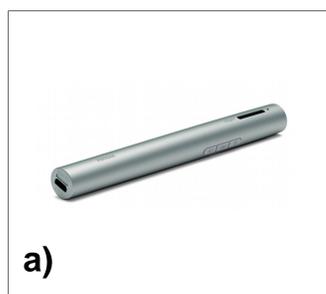
Because the overwhelming majority of adults with hearing loss have difficulty understanding conversation in background noise, audiologists may need to use speech-in-noise (SIN) tests, in order to quantify the communication difficulties. The BKB-SIN¹ test could provide the audiologist with powerful information that could allow for a better hearing aid selection and a counseling tool to help the patient realize the benefits of amplification. Further, helping adults with hearing loss realize the benefits obtained with amplification and remote microphone wireless technology may facilitate their decision to move forward with acquiring technology. A new hearing aid user participated in a week-long Summer Intensive Auditory Rehabilitation Conference² (SIARC) at The University of Texas at Dallas. At the conference, a portable speech-in-noise protocol was used to evaluate the Phonak Roger technology. Following the SIN test, the participant's interest in assistive technology increased.

PURPOSE

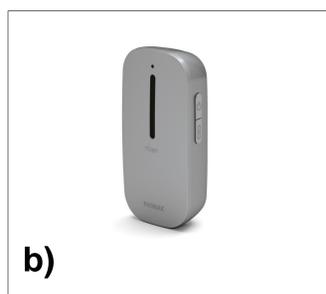
- To document the benefits of participation in a week-long intensive auditory rehabilitation conference.
- To describe the benefits of using non-traditional speech-in-noise testing methods in aural rehabilitation settings.

EQUIPMENT & MATERIALS

- BKB-SIN¹ testing materials
- Phonak Roger Pen (Fig. 1a)
- Phonak Roger Clip-On Microphone (Fig. 1b)
- HDMX JAM speaker
- TELEGRAM³
- Client Oriented Scale of Improvement (COSI)⁴



a)



b)

Figure 1. a) Phonak Roger Pen, and b) Clip-On Mic.

METHODS

Participant

- 73 year-old retired male
- Right ear: Normal-to-moderately severe sloping sensorineural hearing loss; Left ear: Normal-to-profound sloping sensorineural hearing loss
- No previous experience with hearing aids

Design

The participant attended various SIARC classes including:

- Audiological assessment (Table 1)
- Coping Strategies
- Speech Reading and Auditory Training
- Communication Strategies

Table 1. SIARC audiological classes by day

Day	Activity
Day 1	Comprehensive audiological assessment, COSI, TELEGRAM
Day 2	Initial hearing aid fitting with Phonak Naida Q90 receiver-in-the-canal (RIC)
Day 3	Hearing aid re-fitting and real-ear verification
Day 4	Initial fit of Phonak Roger remote wireless assistive system and SIN testing
Day 5	In-depth overview of audiological assessment and completion of COSI and TELEGRAM

Testing Procedures

- Testing arrangement shown in Figure 2.
- Multi-talker babble from BKB-SIN presented through the JAM speaker via Bluetooth connectivity with an iPad
- Examiner and JAM speaker three feet from the listener
- BKB-SIN sentences presented live voice with and without assistive technology

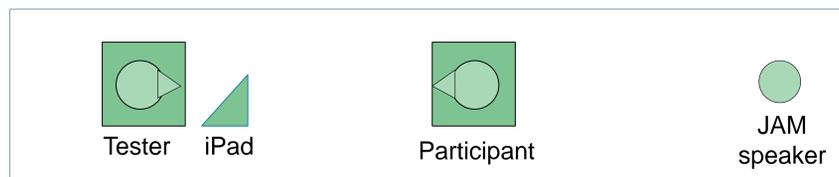


Figure 2. Speech perception testing arrangement

RESULTS

- In the unaided condition, the participant exhibited a moderate signal-to-noise-ratio (SNR) loss (Table 2).
- The participant did perform better with the hearing aid, however most benefit was demonstrated through the utilization of the Roger technology.
- The participant also reported increased benefit, through the COSI following his participation at SIARC.

Table 2. Speech-in-noise loss for the unaided and aided conditions

	Unaided	Hearing Aid	Hearing Aid + Roger
SNR Loss (dB)	10.5	7.5	3.5

CONCLUSIONS

- Benefit with use of wireless assistive technology and communication strategies provides support for ongoing investigations of the role of an intensive aural rehabilitation conference for various groups of individuals with hearing loss.⁵
- The participant ultimately decided to purchase Phonak Naida RIC aids that have the ability to interface with the Roger technology.
- Per his most recent appointment, the participant was satisfied with the aids, especially the music program.

REFERENCES

1. Bench, J., Kowal, A. and Bamford, J. (1979). The BKB (Bamford-Kowal-Bench) sentence lists for partially-hearing children. *British Journal of Audiology*, 13, 108-112.
2. Thibodeau, L., & Cokely, C. (2003). Maximizing auditory rehabilitation for clients, students, and faculty through an intensive training program. *Journal of the Academy of Rehabilitative Audiology*, 36, 67-79.
3. Thibodeau, L. (2004). Plotting beyond the audiogram to the TELEGRAM, a new assessment tool. *The Hearing Journal*, 57(11), 46-51.
4. Dillon, H., James, A., & Ginis, J. (1997). Client Oriented Scale of Improvement (COSI) and its relationship to several other measures of benefit and satisfaction provided by hearing aids. *Journal of the American Academy of Audiology*, 8, 27-43.
5. Thibodeau, L. (2014). Comparison of speech recognition with adaptive digital and FM remote microphone hearing assistance technology by listeners who use hearing aids. *Am J Audiol*, 23, 201-210.

ACKNOWLEDGEMENTS

Appreciation is expressed to Phonak for providing Roger technology for use during SIARC.