

Field Study News

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Deeper ear impressions with EasyView Otoblock

Introduction

The EasyView Otoblock (EVOB) has been developed to assist audiologists when taking deep ear impressions. It can be directly mounted onto a standard pediatric otoscope specula (figure 1). The transparent lens at the end of the EVOB allows for full visualization of the ear canal and tympanic membrane during insertion. This new and superior technology for which a patent application is pending [1] enables a Hearing Care Provider to place the otoblock as deeply as needed. Deeper impressions lead to the production of in-the-ear hearing aids or earmolds which are more discrete, and have a more natural sound quality.



Figure 1. On the left is a picture of the EasyView Otoblock. On the right is a picture of the EasyView Otoblock mounted onto a standard pediatric otoscope specula.

A pre-launch test was conducted to investigate the impression length improvement with the usage of the EasyView Otoblock compared to standard otoblocks.

Methodology

A cross-over trial was conducted in the USA, Australia and Switzerland. 22 audiologists and the same number of clients participated in this trial. Each audiologist took an ear impression on one subject with the standard otoblock and

another with the EasyView Otoblock. Both impressions were taken on the same ear. The standard otoblock type depended on the personal preference of the audiologist. All ear impressions were scanned and digitally aligned in the software in order to measure the difference in length of the ear-canal portion. As the EasyView Otoblock reproduces the ear canal shape, it is not removed for the scanning process as it provides extra valuable information regarding the shape and direction of the ear canal. The standard otoblocks were removed, which is common procedure as they don't reflect the shape of the ear canal. Figure 2 shows an example of a picture produced by the scanning software.

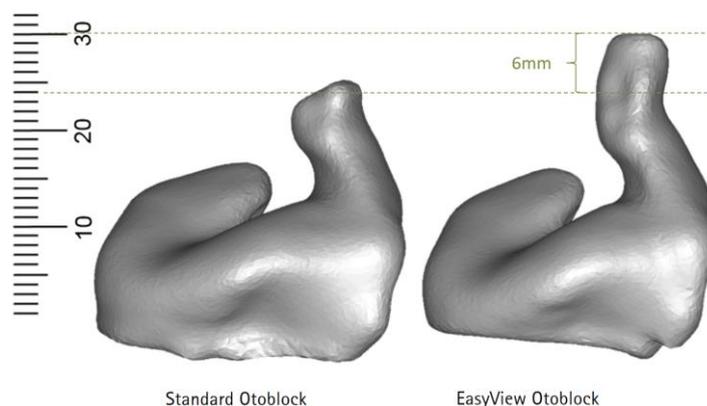


Figure 2. Pictures produced by the ear impression scanning software. The impression produced by the standard otoblock is on the left and that produced by the EVOB is on the right. A difference of about 6mm can be seen in ear canal portion length.

Results

The average ear canal length between aperture plane and tip of the ear impression for standard otoblocks was 11.77 (± 2.62 mm SD) compared to the ear canal length for the EasyView Otoblock impressions with 17.25 (± 3.29 mm SD). This results in a mean value of impression length improvement of 5.52mm (± 2.89 mm SD), or 46% with the EasyView Otoblock. Boxplots demonstrating these values can be seen in figure 3.

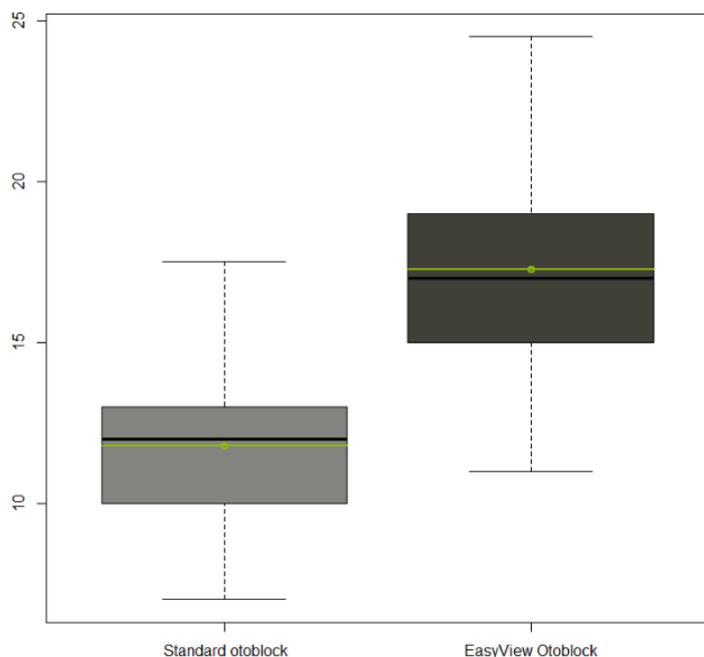


Figure 3. Boxplots showing mean (green line), standard deviation, 1st and 3rd quartiles for the two otoblock types.

Figure 4 shows the impression length improvement with the EVOB.

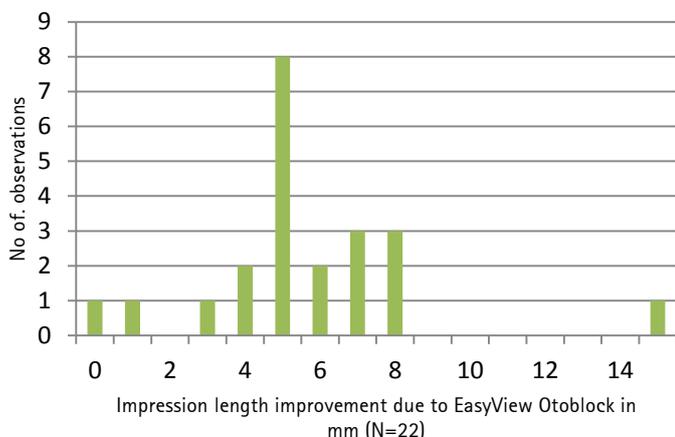


Figure 4. Impression length improvement with EasyView Otoblock and how many times this was observed.

Conclusion

The results showed significant ($p < 0.01$) improvement in ear impression length by using the EasyView Otoblock compared to standard otoblocks. Longer ear impressions are beneficial in the manufacturing process of the hearing aid and can produce hearing devices with potentially longer ear canal portions. This benefits the client by creating a better fitting hearing aid, reducing feedback and providing more natural sound. Additionally, in the case of in-the-ear hearing aids, a longer ear canal portion means the internal parts can be placed further in the ear, leading to a more discrete hearing aid.

References

[1]: WO2016045906A1:
https://worldwide.espacenet.com/publicationDetails/originalDocument?locale=en_EP&FT=D&CC=WO&DB=EPODOC&NR=2016045709A1&date=20160331&ND=4&KC=A1#

Authors and investigators

Jana-Kosima Schwarzlos Sooprayen
CustomProducts Audiological Engineer