Best First Fit Experience From Phonak: Phonak Marvel

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Phonak Audiology Research Center (PARC)

About the Presenter

Lori Rakita, Senior Manager of Clinical Research at Phonak Audiology Research Center (PARC)

Lori received her Bachelor of Science Degree in Psychology from the University of Wisconsin-Madison in 2009. While studying at the University of Wisconsin, Lori was extensively involved with research in the Psychology Department. Lori received her Doctorate of Audiology from Washington University in St. Louis, where her passion in the areas of cognitive and social psychology continued through her study of Audiology.

Lori is currently the Senior Manager of Clinical Research at the Phonak Audiology Research Center (PARC), where she designs research studies in both lab and real world environments. Although much of the research relates to the hearing aid technology, itself, Lori feels it is essential to answer questions about how to best help the individual with hearing loss. Lori relies on her psychology background to design these research studies that will ultimately inform audiologists how to understand and connect with the patient in a more meaningful way. An example of these types of studies include work on the topic of emotions and hearing loss.

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Welcome to PARC!

Presented in partnership with

[Image of PARC projects]

PARC Projects

Thought Leadership

S&T  R&D  Sci Marketing/Claims

75% Scientific Marketing
Learner Outcomes

• Participants will summarize why first fit acceptance is important for first-time hearing aid users

• Participants will describe the research study done at the Phonak Audiology Research Center

• Participants will identify key differences in the Phonak Marvel platform as compared to the Belong platform for first-time hearing aid users

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Google Search: “What to Expect at a First Hearing Aid Fitting”

• “The initial reaction to your own voice can be negative. Patients often say their own voice is louder and sounds strange or like “they are talking in a barrel”. This is frequently caused by hearing yourself amplified through a microphone. If you are not able to adjust to your voice after regular use of the hearing aids for a few days, then you may be experiencing something called the “occlusion effect” and you need to discuss this with your audiologist.”

http://hearing.wustl.edu/Hearing-Aids/Hearing-Aid-Fittings
• “Even with the best audiologist and the most precise fit, getting used to new hearing aids takes some time. Your audiologist will prescribe a wearing schedule for your new hearing aids, and you should follow it. *It may be uncomfortable at first*, but study after study has shown that those who wear hearing aids score higher in tests of happiness and quality of life. So stick to the schedule and give yourself time to get used to your new devices.”

• “When you start using a hearing aid, the sounds that you hear may seem odd, off-balance, or different from how you remember them. This is because when hearing loss happens, changes occur not only in the ears, but also in the brain. As a result, the brain adjusts and rewires itself to cope with hearing loss. So when a hearing aid sends normal hearing volume again, the brain may react with surprise and interpret the sound as too loud or otherwise, ‘off’.”
• “For first-time users, hearing aids will often sound ‘tinny’ or ‘amplified’ or even seemingly too loud for the first days of use. This is because for most first-time users, their brains have forgotten what it is like to hear normally, which is part of a process that is often referred to as auditory deprivation.”

https://www.hearingtracker.com/ask/what-do-hearing-aids-sound-like

• “When you begin to wear hearing aids, these sounds will be restored but your brain will need practice and reeducation in order to selectively focus on and filter sounds. Some sounds may even startle you at first. Know that your brain will acclimate to these sounds again over time.”

https://www.starkey.com/improve-your-hearing/frequently-asked-questions/adjusting-to-hearing-aids
What is the Message People are Receiving about Hearing Aids at First Fit?

• Initial Acceptance May be Negative
• Own voice may sound “weird”
• Sounds will be different than how they are remembered
• Will take getting used to
• May not like the hearing aids at first
• Brain has to adjust

What is the problem here:

• Positives?
• Contrary to the changing mindset of the general population

What is the Big Idea with “first fit acceptance?”
The World of “Instant Gratification”

Factors Influencing Help Seeking, Hearing Aid Uptake, Hearing Aid Use and Satisfaction With Hearing Aids: A Review of the Literature

Line Vestergaard Knudsen,1 Marie Öberg,2 Claus Nielsen,1 Graham Naylor,1 and Sophia E. Kramer1,3
Factors Influencing Help Seeking, Hearing Aid Uptake, Hearing Aid Use and Satisfaction With Hearing Aids: A Review of the Literature
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What DOES Matter for Long term Hearing Aid Satisfaction

1 Self-reported hearing problems, activity limitation (Knudsen et al., 2010)

2 Performance “beyond expectations” (Meyer et al., 2014)
Regardless, there is an impression….

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**How important are the following attributes when selecting a hearing aid for your patient?**

(Scale reversed for clarity. 10 is most important, 1 is least important)

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound quality</td>
<td>8.0</td>
</tr>
<tr>
<td>Reliability</td>
<td>6.7</td>
</tr>
<tr>
<td>Ease of use</td>
<td>5.3</td>
</tr>
<tr>
<td>Value for money</td>
<td>4.6</td>
</tr>
<tr>
<td>Ease of fit</td>
<td>4.2</td>
</tr>
<tr>
<td>Connectivity or audio...</td>
<td>3.3</td>
</tr>
<tr>
<td>Aesthetics</td>
<td>2.7</td>
</tr>
<tr>
<td>Relationship with...</td>
<td>2.6</td>
</tr>
<tr>
<td>Battery life</td>
<td>2.2</td>
</tr>
<tr>
<td>Ability to recharge</td>
<td>1.3</td>
</tr>
<tr>
<td>Brand</td>
<td>1.1</td>
</tr>
<tr>
<td>Telecoil functionality</td>
<td>0.0</td>
</tr>
</tbody>
</table>

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**What DOES Matter for Hearing Aid Satisfaction**

1. Perceived Benefit (0.71)
2. Clarity of Sound (0.70)
3. Performance relative to price (0.68)
4. Natural Sounding (0.65)

MarketTrak VIII, 2010

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Sound Quality (and Performance) are Important Drivers of Hearing Aid Satisfaction

Goal of Marvel:

Deliver the first fit experience new hearing aid users want
And the performance new hearing aid users need
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Introducing.....

Phonak Marvel

Maximizing first fit
From the first moment of truth ... in everyday life ... when hearing gets tough

Exceptional sound quality from the first fit
Better speech understanding in noise
Reduced listening effort in noise
Top rated streamed sound quality
1. New Compression Strategy

New, improved & unique

New pre-calculation delivers exceptional sound quality from the first fit

= 

The best first fit Phonak has ever achieved

2. New Precalculation

Insertion gain Female Speech @ 65dB

Gain

15
10
5
0
-5
125 250 500 1000 2000 4000 8000

Frequency

Phonak Belong

Phonak Marvel

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2. New Sound Delivery System 4.0

**Performance**
Additional new standard M receiver.
Small in size, big in performance

**Reliability**
Increased reliability of receivers

**Comfort**
More comfort thanks to new dome designs

University of Oldenburg
First Fit Acceptance

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University of Oldenburg Study:

First Fit Acceptance

- **Fitter's Office**
  - Spontaneous comments
  - A-B ratings: loudness, shrillness, naturalness of own voice and fitter's voice

- **Shopping Mall**
  - Spontaneous comments
  - A-B ratings: loudness, shrillness, naturalness, listening effort, subjective speech understanding

- **Speech Intelligibility tests**
  - In quiet
  - In noise

Participants

- 20 first-time hearing aid users
- Mild to Moderate hearing loss
- Default hearing aid settings
- 80% of target gain for first-time hearing aid users (0-3 months experience)
- New pre-calculation (Marvel) vs. “Old” (Belong)
Results

Fitter's office: Spontaneous comments

Exceptional sound quality
from the first fit

Audéo
Belong™

Audéo Marvel™

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continued
Marvel vs. Belong – Sound Quality Ratings

- Preference
  - # subjects
  - Fitter’s office: Belong, Marvel
  - Shopping mall: Marvel

- Extremely shrill
  - Not shrill: Belong, Marvel

Excellent Speech Intelligibility

- Speech Testing in Quiet, WAKO
  - Speech intelligibility (%)
  - Belong, Marvel

- Speech Testing in Noise, Gösa
  - SRT (dB SNR)
  - Belong, Marvel
Phonak Audiology Research Center
Marvel First Fit Acceptance Study

Study Aim

• Assess:
  • Spontaneous acceptance (in-office, ~2 minutes)
  • First impressions of sound quality (sound parcour, ~10 minutes)

• New hearing aid users (no previous hearing aid experience)

• Phonak Marvel (RIC), Phonak Belong (RIC), Comparable competitor device (RIC)
Participants

18 Adults (age 32 - 82, \( \bar{x} = 65 \))
No prior hearing aid experience

![Average Audiogram (R and L), Standard Deviations]

Method

**Phonak**

**Devices**
- Audéo M90-13 RIC (*Marvel*)
  - M receivers
  - Prescribed coupling
- Audéo B90-13 RIC (*Belong*)
  - S receivers
  - Prescribed coupling

**Programming**
- Proprietary fitting formula (APD)
- Default gain settings for a first-time user
  - 80% target gain

**Competitor**

**Devices**
- Comparable competitor device (RIC)
  - Prescribed receiver
  - Prescribed coupling

**Programming**
- Proprietary fitting formula
- Default gain settings for a first-time user
  - Adaptation Manager set to Level 1
## Method

1. **Spontaneous acceptance**
   - Stimuli:
     - Experimenter’s voice
     - Own voice
   - Open Comments and Ratings:
     - Likelihood of wanting to wear at home
     - Initial impression of sound quality

2. **“Longer Term” Ratings**
   - Stimulus:
     - Guided walk (around building)
     - Foyer, Outside, Customer Care, Coffee Machine
   - Open comments and Ratings:
     - Likelihood of wanting to wear
     - Enjoyment

- Completed with each set of hearing aids (Marvel, Belong, competitor; counterbalanced)
  - Double-blinded
  - Ranked in order of preference (Best, Middle, Worst)

## Results

Presented in partnership with [Continued]
Results

Likelihood of wanting to wear hearing aid at home

<table>
<thead>
<tr>
<th></th>
<th>Belong</th>
<th>Marvel</th>
<th>Competitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Rating</td>
<td>5.6</td>
<td>6.2</td>
<td>5.4</td>
</tr>
</tbody>
</table>

Initial impression of Sound Quality

<table>
<thead>
<tr>
<th></th>
<th>Belong</th>
<th>Marvel</th>
<th>Competitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Rating</td>
<td>5.8</td>
<td>6.4</td>
<td>5.6</td>
</tr>
</tbody>
</table>

Asterisks indicate a statistically significant difference based on a repeated measures ANOVA (alpha level = .05).

Results

Longer-Term Ratings of Sound Quality (Guided Walk)

<table>
<thead>
<tr>
<th></th>
<th>Belong</th>
<th>Marvel</th>
<th>Competitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall HA SQ enjoyment</td>
<td>5.9</td>
<td>6.1</td>
<td>5.1</td>
</tr>
<tr>
<td>Likelihood of wearing HAs full-time</td>
<td>5.4</td>
<td>5.8</td>
<td>5.2</td>
</tr>
<tr>
<td>Likelihood of recommending HAs</td>
<td>5.6</td>
<td>5.8</td>
<td>5.1</td>
</tr>
</tbody>
</table>

Asterisk indicates a statistically significant difference based on a repeated measures ANOVA (alpha level = .05).
Results

Number of "Best" Ratings

Frequency of the Response

- Belong
- Marvel
- Competitor

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Belong</th>
<th>Marvel</th>
<th>Competitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>11</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
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<tr>
<td>8</td>
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<td>0</td>
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</table>

Conclusions

- Participants preferred sound quality of Marvel right out of the box ("Love at First Sound")
  - Most preferred at first fit (almost 2:1 compared to the competitor device)
- Marvel was preferred over the competitor after listening in multiple environments

Superior perceived sound quality for new hearing aid users
Conclusions

- First Fit Acceptance is Important
- Hearing aid users are reluctant to get hearing aids, and the internet may reinforce these hesitancies
- The first fit is a pivotal moment in the hearing aid journey

- Phonak Marvel’s new pre-calculation and Sound Delivery System provides a superior first fitting experience
Why is this Topic Important?
Benefit of consistent hearing aid use, beyond hearing

Love at first sound

- Clear, rich sound
- Connects to smartphones, TV and more
- Rechargeable
- Smart apps

It’s not just a great hearing aid. It’s a multifunctional marvel.
Together, we change lives