The Value of Audiologists During the Hearing Aid Fitting Process: Real-Ear Measurement (REM)

ASHA American Speech-Language-Hearing Association

Verifying a Hearing Aid Fitting with REM Administered by an Audiologist Improves Communication and Hearing Aid Outcomes.

Why do audiologists perform REM?

- Considered best practice when fitting a hearing aid.
- Measures the loudness of the hearing aid within the ear canal.
- Confirms that the hearing aid is providing the maximum benefit (audibility, comfort, and effectiveness) to the user.

Speech Intelligibility

Individuals who received a REM-verified fitting, compared to default settings, experienced improvement in...

- Speech intelligibility performance in quiet **[SMD = 0.59],**[1]
- Speech recognition scores using CNC words **(15%)** and phonemes **(7.7%),**[2] and
- The average signal-to-noise ratio **(6.6 dB)**.[3]

Self-Reported Listening Ability and Communication Experience

Individuals who received a REM-verified fitting, compared to default settings, experienced increased...

- Self-perceived listening ability **[SMD = 0.22, p= .0005]**,[1]
- Overall communication outcomes **[F(1, 21) = 4.69, *p* = .042],**[4] and
- Self-perceived understanding of speech in background noise **(4.2%)**.[2]

Patient Satisfaction and Perception

With a REM-verified fitting, individuals reported...

- Significantly higher satisfaction with hearing aid services for both experienced **[x2 (1, N) = 8.33, *p* < .05]** and first-time hearing aid users **[x2 (1) = 14.54, *p* < .001]**,[5]
- A preference for verified hearing aid settings **(67%–79% of patients)**,[2, 6] and
- Increased patient perception that the professional services and hearing aids solved their problem or fulfilled their needs **(1.8–3.3 point improvement in response ratings)**.[5]

Tinnitus Symptoms

- Individuals with REM-verified hearing aids experienced significantly reduced tinnitus distress **[x2 = 5.48, *p* = .02]** and tinnitus loudness **[x2 = 21.5, *p* < .00001]**.[7]

Hearing Aid Fit and Acceptability

- Devices verified using REM more closely matched prescriptive targets **(within 1.5–2.5 dB)** compared to default levels **(underfit by 7–10 dB)**.[8]
- Individuals who received REM-verified hearing aids were more likely to keep their devices compared to those who received unverified hearing aids **(81%–83% versus 55%)**.[9]

Abbreviations: SMD: Standard Mean Difference
CNC: Consonant-nucleus-consonant

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