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- To bring together a range of recently-published research reports, articles and electronic resources to help all staff keep up-to-date with research and practice.

- To remind readers of the services available from the Library and Knowledge Service – we can supply you with 1:1 or small group training in evidence searching skills; obtain full-text articles for you; or provide you with an evidence search service to help you with your evidence based practice, patient care, decision making and research.

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Articles
Healthcare Database – Selection of articles found in Medline (published: June 2016 – July 2017)

Items ordered with the most recent first

Titles List
1. Perspectives on the Pure-Tone Audiogram.

2. Aural Rehabilitation for Older Adults with Hearing Loss: Impacts on Quality of Life-A Systematic Review of Randomized Controlled Trials.

3. Speech Intelligibility as a Cue for Acceptable Noise Levels.

4. Development of the Word Auditory Recognition and Recall Measure: A Working Memory Test for Use in Rehabilitative Audiology.

5. Outer Hair Cell and Auditory Nerve Function in Speech Recognition in Quiet and in Background Noise.

6. Technology-assisted language intervention for children who are deaf or hard-of-hearing; a pilot STUDY of augmentative and alternative communication for enhancing language development.

7. Using prosody to infer discourse prominence in cochlear-implant users and normal-hearing listeners.


10. Vibroplasty in Severe Congenital or Acquired Meatal Stenosis by Coupling an Active Middle Ear Implant to the Short Process of the Incus.


12. Factors influencing hearing outcomes in pediatric patients undergoing ossicular chain reconstruction.

13. Hybrid cochlear implantation: quality of life, quality of hearing, and working performance compared to patients with conventional unilateral or bilateral cochlear implantation.


16. How directional microphones affect speech recognition, listening effort and localisation for listeners with moderate-to-severe hearing loss.

17. Factors influencing speech perception in noise for 5-year-old children using hearing aids or cochlear implants.

18. Comparison of Different Hearing Aid Prescriptions for Children.


20. Objective Voice Analysis of Pediatric Cochlear Implant Recipients and Comparison With Hearing Aids Users and Hearing Controls.


31. Systematic review to evaluate the safety, efficacy and economical outcomes of the Vibrant Soundbridge for the treatment of sensorineural hearing loss.

32. Universal newborn hearing screening: methods and RESULTS, obstacles, and benefits.

34. The role of bone conduction hearing aids in congenital unilateral hearing loss: A systematic review.


37. Masked speech perception across the adult lifespan: Impact of age and hearing impairment.


40. Audiological profile of patients treated for childhood cancer.

41. Progressive Hearing Loss in Early Childhood.

42. Impact of Hearing Aid Technology on Outcomes in Daily Life II: Speech Understanding and Listening Effort.

43. Using the Digits-In-Noise Test to Estimate Age-Related Hearing Loss.

44. Examination of Insert Ear Interaural Attenuation (IA)Values in Audiological Evaluations.

45. The Role of Telemedicine in Auditory Rehabilitation: A Systematic Review.

46. A review of the perceptual effects of hearing loss for frequencies above 3 kHz.

47. Comparing audiological test RESULTS obtained from a sound processor attached to a Softband with direct and magnetic passive bone conduction hearing implant systems.

48. Functions of the inner ear in psoriatic arthritis.

49. A Look into the Crystal Ball for Children Who Are Deaf or Hard of Hearing: Needs, Opportunities, and Challenges.

50. Validation of a Self-Administered Audiometry Application: An Equivalence STUDY.

51. Use of Baby Isao Simulator and Standardized Parents in Hearing Screening and Parent Counseling Education.

52. Language and speech outcomes of children with hearing loss and additional disabilities: identifying the variables that influence performance at five years of age.


54. Tablet Audiometry in Canada’s North: A Portable and Efficient Method for Hearing Screening.
55. Hearing loss in Down Syndrome revisited - 15 years later.

56. Is age a limiting factor for adaptation to cochlear implant?

57. Cochlear Implants in Subjects Over Age 65: Quality of Life and Audiological Outcomes.

58. Comprehensive Audiometric Analysis of Hearing Impairment and Tinnitus After Cisplatin-Based Chemotherapy in Survivors of Adult-Onset Cancer.

59. Hearing and Cognitive Impairment and the Role of the International Classification of Functioning, Disability and Health as a Rehabilitation Framework.

60. What Is the International Classification of Functioning, Disability and Health and Why Is It Relevant to Audiology?


62. Validating self-reporting of hearing-related symptoms against pure-tone audiometry, otoacoustic emission, and speech audiometry.

63. Comparison of Audiological RESULTS Between a Transcutaneous and a Percutaneous Bone Conduction Instrument in Conductive Hearing Loss.

64. Self-Fitting Hearing Aids: Status Quo and Future Predictions.

Full strategy
1. Perspectives on the Pure-Tone Audiogram.

Author(s): Musiek, Frank E; Shinn, Jennifer; Chermak, Gail D; Bamiou, Doris-Eva

Source: Journal of the American Academy of Audiology; vol. 28 (no. 7); p. 655-671

Publication Type(s): Journal Article Review

PubMedID: 28722648

Abstract: BACKGROUND The pure-tone audiogram, though fundamental to audiology, presents limitations, especially in the case of central auditory involvement. Advances in auditory neuroscience underscore the considerably larger role of the central auditory nervous system (CANS) in hearing and related disorders. Given the availability of behavioral audiological tests and electrophysiological procedures that can provide better insights as to the function of the various components of the auditory system, this perspective piece reviews the limitations of the pure-tone audiogram and notes some of the advantages of other tests and procedures used in tandem with the pure-tone threshold measurement. PURPOSE To review and synthesize the literature regarding the utility and limitations of the pure-tone audiogram in determining dysfunction of peripheral sensory and neural systems, as well as the CANS, and to identify other tests and procedures that can supplement pure-tone thresholds and provide enhanced diagnostic insight, especially regarding problems of the central auditory system. RESEARCH DESIGN A systematic review and synthesis of the literature. DATA COLLECTION AND ANALYSIS The authors independently searched and reviewed literature (journal articles, book chapters) pertaining to the limitations of the pure-tone audiogram. RESULTS The pure-tone audiogram provides information as to hearing sensitivity across a selected frequency range. Normal or near-normal pure-tone thresholds sometimes are observed despite cochlear damage. There are a surprising number of patients with acoustic neuromas who have essentially normal pure-tone thresholds. In cases of central deafness, depressed pure-tone thresholds may not accurately reflect the status of the peripheral auditory system. Listening difficulties are seen in the presence of normal pure-tone thresholds. Suprathreshold procedures and a variety of other tests can provide information regarding other and often more central functions of the auditory system. The audiogram is a primary tool for determining type, degree, and configuration of hearing loss; however, it provides the clinician with information regarding only hearing sensitivity, and no information about central auditory processing or the auditory processing of real-world signals (i.e., speech, music). The pure-tone audiogram offers limited insight into functional hearing and should be viewed only as a test of hearing sensitivity. Given the limitations of the pure-tone audiogram, a brief overview is provided of available behavioral tests and electrophysiological procedures that are sensitive to the function and integrity of the central auditory system, which provide better diagnostic and rehabilitative information to the clinician and patient.

Database: Medline

2. Aural Rehabilitation for Older Adults with Hearing Loss: Impacts on Quality of Life-A Systematic Review of Randomized Controlled Trials.

Author(s): Michaud, Helen N; Duchesne, Louise

Source: Journal of the American Academy of Audiology; vol. 28 (no. 7); p. 596-609

Publication Type(s): Journal Article

PubMedID: 28722643
Abstract: BACKGROUND Few systematic reviews have been conducted regarding aural rehabilitation for adults with hearing loss, with none specifically targeting the older adult population. With prevalence rates of hearing loss being highest in older adults, examining the effects of aural rehabilitation on this population is warranted. PURPOSE To evaluate the effects of aural rehabilitation on quality of life in an older adult population presenting with hearing loss. ELIGIBILITY CRITERIA Studies with adults presenting with hearing loss, ≥50 yr of age, with or without hearing aids, receiving interventions such as auditory training, speech-reading, communication strategies training, speech tracking, counseling, or a combination of approaches, and measuring outcomes related to quality of life, in an individual or group format, with or without significant others and with no limitations as to year of publication. STUDY SELECTION Searches in six databases, as well as RESULTS from hand-searching, gray literature, and cross-referencing of articles, yielded 386 articles. Of the 145 assessed as full-text articles for eligibility, 8 studies met inclusion criteria. STUDY APPRAISAL A component-based risk of bias assessment, as recommended by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement. RESULTS No effect sizes were found in group interventions measuring outcomes related to quality of life, such as mental and emotional functions, environmental factors, participation restrictions, and activity limitations. An intervention effect regarding participation was found for a self-administered home training program, but an effect size was unavailable. Small-to-medium effect sizes were found in one of two individual communication training programs, for which outcomes related to quality of life, such as emotional functions, activities, participation, and environmental factors were measured. The RESULTS of the component-based risk of bias assessment indicated that the quality of reporting was poor, thus compromising the internal validity of included primary studies. Our RESULTS indicate that the combined body of evidence in support of aural rehabilitation for older adults with hearing loss is not sufficient to draw any firm conclusions. We identify a need for more rigorous research to guide clinical decision-making.

Database: Medline

3. Speech Intelligibility as a Cue for Acceptable Noise Levels.

Author(s): Recker, Karrie L; Micheyl, Christophe

Source: Ear and hearing; ; vol. 38 (no. 4); p. 465-474

Publication Type(s): Journal Article

PubMedID: 28169839

Abstract: OBJECTIVES The goal of this STUDY was to examine whether individuals are using speech intelligibility to determine how much noise they are willing to accept while listening to running speech. Previous research has shown that the amount of background noise that an individual is willing to accept while listening to speech is predictive of his or her likelihood of success with hearing aids. If it were possible to determine the criterion by which individuals make this judgment, then it may be possible to alter this cue, especially for those who are unlikely to be successful with hearing aids, and thereby improve their chances of success with hearing aids. DESIGN Twenty-one individuals with normal hearing and 21 with sensorineural hearing loss participated in this STUDY. In each group, there were 7 with a low, moderate, and high acceptance of background noise, as determined by the Acceptable Noise Level (ANL) test. (During the ANL test, listeners adjusted speech to their most comfortable listening level, then background noise was added, and they adjusted it to the maximum level that they were "willing to put up with" while listening to the speech.) Participants also performed a modified version of the ANL test in which the speech was fixed at four different levels (50, 63, 75, and 88 dBA), and they adjusted only the level of the
The authors calculated speech intelligibility index (SII) scores for each participant and test level. SII scores ranged from 0 (no speech information is present) to 1 (100% of the speech information is present). The authors considered a participant's RESULTS to be consistent with a speech intelligibility-based listening criterion if his or her SIIs remained constant across all of the test conditions. RESULTS For all but one of the participants with normal hearing, their SIIs remained constant across the entire 38-dB range of speech levels. For all participants with hearing loss, the SII increased with speech level. For most listeners with normal hearing, their ANLs were consistent with the use of speech intelligibility as a listening cue; for listeners with hearing impairment, they were not. Future studies should determine what cues these individuals are using when selecting an ANL. Having a better understanding of these cues may help audiologists DESIGN and optimize treatment options for their patients.

Database: Medline

4. Development of the Word Auditory Recognition and Recall Measure: A Working Memory Test for Use in Rehabilitative Audiology.

Author(s): Smith, Sherri L; Pichora-Fuller, M Kathleen; Alexander, Genevieve

Source: Ear and hearing; ; vol. 37 (no. 6); p. e360

Publication Type(s): Journal Article

PubMedID: 27438869

Abstract: OBJECTIVES The purpose of this STUDY was to develop the Word Auditory Recognition and Recall Measure (WARRM) and to conduct the inaugural evaluation of the performance of younger adults with normal hearing, older adults with normal to near-normal hearing, and older adults with pure-tone hearing loss on the WARRM. DESIGN The WARRM is a new test designed for concurrently assessing word recognition and auditory working memory performance in adults who may have pure-tone hearing loss. The test consists of 100 monosyllabic words based on widely used speech-recognition test materials. The 100 words are presented in recall set sizes of 2, 3, 4, 5, and 6 items, with 5 trials in each set size. The WARRM yields a word-recognition score and a recall score. The WARRM was administered to all participants in three listener groups under two processing conditions in a mixed model (between-subjects, repeated measures) DESIGN. The between-subjects factor was group, with 48 younger listeners with normal audiometric thresholds (younger listeners with normal hearing [YNH]), 48 older listeners with normal thresholds through 3000 Hz (older listeners with normal hearing [ONH]), and 48 older listeners with sensorineural hearing loss (older listeners with hearing loss [OHL]). The within-subjects factor was WARRM processing condition (no additional task or with an alphabet judgment task). The associations between RESULTS on the WARRM test and RESULTS on a battery of other auditory and memory measures were examined. RESULTS Word-recognition performance on the WARRM was not affected by processing condition or set size and was near ceiling for the YNH and ONH listeners (99 and 98%, respectively) with both groups performing significantly better than the OHL listeners (83%). The recall RESULTS were significantly better for the YNH, ONH, and OHL groups with no processing (93, 84, and 75%, respectively) than with the alphabet processing (86, 77, and 70%). In both processing conditions, recall was best for YNH, followed by ONH, and worst for OHL listeners. WARRM recall scores were significantly correlated with other memory measures. In addition, WARRM recall scores were correlated with RESULTS on the Words-In-Noise (WIN) test for the OHL listeners in the no processing condition and for ONH listeners in the alphabet processing condition. Differences in the WIN and recall scores of these groups are consistent with the interpretation that the OHL listeners found listening to be sufficiently demanding to affect recall even in the no processing condition,
whereas the ONH group listeners did not find it so demanding until the additional alphabet processing task was added. **CONCLUSION**

These findings demonstrate the feasibility of incorporating an auditory memory test into a word-recognition test to obtain measures of both word recognition and working memory simultaneously. The correlation of WARRM recall with scores from other memory measures is evidence of construct validity. The observation of correlations between the WIN thresholds with each of the older groups and recall scores in certain processing conditions suggests that recall depends on listeners' word-recognition abilities in noise in combination with the processing demands of the task. The recall score provides additional information beyond the pure-tone audiogram and word-recognition scores that may help rehabilitative audiologists assess the listening abilities of patients with hearing loss.

**Database:** Medline

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5. **Outer Hair Cell and Auditory Nerve Function in Speech Recognition in Quiet and in Background Noise.**

**Author(s):** Hoben, Richard; Easow, Gifty; Pevzner, Sofia; Parker, Mark A

**Source:** Frontiers in neuroscience; 2017; vol. 11; p. 157

**Publication Date:** 2017

**Publication Type(s):** Journal Article

**PubMedID:** 28439223

Available in full text at [Frontiers in Neuroscience](https://www.frontiersin.org) - from National Library of Medicine

**Abstract:** The goal of this STUDY was to describe the contribution of outer hair cells (OHCs) and the auditory nerve (AN) to speech understanding in quiet and in the presence of background noise. Fifty-three human subjects with hearing ranging from normal to moderate sensorineural hearing loss were assayed for both speech in quiet (Word Recognition) and speech in noise (QuickSIN test) performance. Their scores were correlated with OHC function as assessed via distortion product otoacoustic emissions, and AN function as measured by amplitude, latency, and threshold of the VIIIth cranial nerve Compound Action Potential (CAP) recorded during electrocochleography (ECochG). Speech and ECochG stimuli were presented at equivalent sensation levels in order to control for the degree of hearing sensitivity across patients. The **RESULTS** indicated that (1) OHC dysfunction was evident in the lower range of normal audiometric thresholds, which demonstrates that OHC damage can produce "Hidden Hearing Loss," (2) AN dysfunction was evident beginning at mild levels of hearing loss, (3) when controlled for normal OHC function, persons exhibiting either high or low ECochG amplitudes exhibited no statistically significant differences in neither speech in quiet nor speech in noise performance, (4) speech in noise performance was correlated with OHC function, (5) hearing impaired subjects with OHC dysfunction exhibited better speech in quiet performance at or near threshold when stimuli were presented at equivalent sensation levels. These **RESULTS** show that OHC dysfunction contributes to hidden hearing loss, OHC function is required for optimum speech in noise performance, and those persons with sensorineural hearing loss exhibit better word discrimination in quiet at or near their audiometric thresholds than normal listeners.

**Database:** Medline
6. Technology-assisted language intervention for children who are deaf or hard-of-hearing; a pilot STUDY of augmentative and alternative communication for enhancing language development.

**Author(s):** Meinzen-Derr, Jareen; Wiley, Susan; McAuley, Rose; Smith, Laura; Grether, Sandra

**Source:** Disability and rehabilitation. Assistive technology; Nov 2017; vol. 12 (no. 8); p. 808-815

**Publication Date:** Nov 2017

**Publication Type(s):** Journal Article

**PubMedID:** 27982714

**Abstract:** PURPOSE: Pilot STUDY to assess the effect of augmentative and alternative communication technology to enhance language development in children who are deaf or hard-of-hearing. MATERIALS AND METHODS: Five children ages 5-10 years with permanent bilateral hearing loss who were identified with language underperformance participated in an individualized 24-week structured program using the application TouchChat WordPower on iPads®. Language samples were analyzed for changes in mean length of utterance, vocabulary words and mean turn length. Repeated measures models assessed change over time. RESULTS: The baseline median mean length of utterance was 2.41 (range 1.09-6.63; mean 2.88) and significantly increased over time (p = 0.002) to a median of 3.68 at final visit (range 1.97-6.81; mean 3.62). At baseline, the median total number of words spoken per language sample was 251 (range 101-458), with 100 (range 36-100) different words spoken. Total words and different words significantly increased over time (β = 26.8 (7.1), p = 0.001 for total words; β = 8.0 (2.7), p = 0.008 for different words). Mean turn length values also slightly increased over time. CONCLUSIONS: Using augmentative and alternative communication technology on iPads® shows promise in supporting rapid language growth among elementary school-age children who are deaf or hard-of-hearing with language underperformance.

**Database:** Medline

7. Using prosody to infer discourse prominence in cochlear-implant users and normal-hearing listeners.

**Author(s):** Huang, Yi Ting; Newman, Rochelle S; Catalano, Allison; Goupell, Matthew J

**Source:** Cognition; Sep 2017; vol. 166 ; p. 184-200

**Publication Date:** Sep 2017

**Publication Type(s):** Journal Article

**PubMedID:** 28578222

**Abstract:** Cochlear implants (CIs) provide speech perception to adults with severe-to-profound hearing loss, but the acoustic signal remains severely degraded. Limited access to pitch cues is thought to decrease sensitivity to prosody in CI users, but co-occurring changes in intensity and duration may provide redundant cues. The current STUDY investigates how listeners use these cues to infer discourse prominence. CI users and normal-hearing (NH) listeners were presented with sentences varying in prosody (accented vs. unaccented words) while their eye-movements were measured to referents varying in discourse status (given vs. new categories). In Experiment 1, all listeners inferred prominence when prosody on nouns distinguished categories ("SANDWICH"→not sandals). In Experiment 2, CI users and NH listeners presented with natural speech inferred prominence when prosody on adjectives implied contrast across both categories and properties ("PINK horse"→not the orange horse). In contrast, NH listeners presented with simulated CI (vocoded) speech were sensitive to acoustic differences in prosody, but did not use these cues to...
infer discourse status. Together, this suggests that exploiting redundant cues for comprehension varies with the demands of language processing and prior experience with the degraded signal.

**Database:** Medline

8. **Auditory processing deficits are sometimes necessary and sometimes sufficient for language difficulties in children: Evidence from mild to moderate sensorineural hearing loss.**

**Author(s):** Halliday, Lorna F; Tuomainen, Outi; Rosen, Stuart

**Source:** Cognition; Sep 2017; vol. 166; p. 139-151

**Publication Date:** Sep 2017

**Publication Type(s):** Journal Article

**PubMedID:** 28577444

**Abstract:** There is a general consensus that many children and adults with dyslexia and/or specific language impairment display deficits in auditory processing. However, how these deficits are related to developmental disorders of language is uncertain, and at least four categories of model have been proposed: single distal cause models, risk factor models, association models, and consequence models. This STUDY used children with mild to moderate sensorineural hearing loss (MMHL) to investigate the link between auditory processing deficits and language disorders. We examined the auditory processing and language skills of 46, 8-16-year-old children with MMHL and 44 age-matched typically developing controls. Auditory processing abilities were assessed using child-friendly psychophysical techniques in order to obtain discrimination thresholds. Stimuli incorporated three different timescales (µs, ms, s) and three different levels of complexity (simple nonspeech tones, complex nonspeech sounds, speech sounds), and tasks required discrimination of frequency or amplitude cues. Language abilities were assessed using a battery of standardised assessments of phonological processing, reading, vocabulary, and grammar. We found evidence that three different auditory processing abilities showed different relationships with language: Deficits in a general auditory processing component were necessary but not sufficient for language difficulties, and were consistent with a risk factor model; Deficits in slow-rate amplitude modulation (envelope) detection were sufficient but not necessary for language difficulties, and were consistent with either a single distal cause or a consequence model; And deficits in the discrimination of a single speech contrast (/bɑ/ vs /dɑ/) were neither necessary nor sufficient for language difficulties, and were consistent with an association model. Our findings suggest that different auditory processing deficits may constitute distinct and independent routes to the development of language difficulties in children.

**Database:** Medline

9. **Long-term Outcomes of Cochlear Implantation in Children With Congenital Cytomegalovirus Infection.**

**Author(s):** Yoshida, Haruo; Takahashi, Haruo; Kanda, Yukihiko; Kitaoka, Kyoko; Hara, Minoru

**Source:** Otology & neurotology : official publication of the American Otological Society, American Neurotology Society [and] European Academy of Otology and Neurotology; Aug 2017; vol. 38 (no. 7); p. e190

**Publication Date:** Aug 2017

**Publication Type(s):** Journal Article
PubMedID: 28604578

Abstract: OBJECTIVE To investigate the role of the developmental delay often observed in children with congenital cytomegalovirus (CMV) infection on the improvement of language understanding after cochlear implantation (CI). STUDY DESIGN Retrospective chart review. PATIENTS Sixteen children with severe and/or profound hearing loss due to congenital CMV infection (CMV group) and 107 congenitally deaf children (168 ears) without CMV infection as the cause of deafness (non-CMV group). Mean age at which patients underwent CI was 2.9 years in both groups. The mean follow-up period was 7.8 versus 8.2 years, respectively. INTERVENTIONS/MAIN OUTCOME MEASURES The Enjoji Scale of Infant Analytical Development was used to evaluate/compare pre- and postoperative hearing level, word recognition score, speech discrimination score, and language production and perception skills. The Picture Vocabulary Test-Revised was used to assess vocabulary understanding skill. Correlation between the final vocabulary understanding skill assessment and several factors was also examined. RESULTS Improvement in hearing thresholds (mean: 106.0 dB) was greater after the first CI, (27-45 dB; mean: 33.8 dB) compared with hearing aid (48-74 dB; mean: 63.1 dB). Similarly, language perception and production were better in the CMV group. However, in the long term, differences between good and poor cases became prominent, especially in children with motor or cognitive delay and brain abnormalities who performed poorly in the CMV group. CONCLUSION Long-term language perception and production after CI were overall satisfactory in congenital CMV-deafened children. CI was effective, particularly in the absence of CMV-induced disorders. However, this effectiveness was limited in those with motor or cognitive delay.

Database: Medline

10. Vibroplasty in Severe Congenital or Acquired Meatal Stenosis by Coupling an Active Middle Ear Implant to the Short Process of the Incus.

Author(s): Thomas, Jan Peter; Voelter, Christiane; Neumann, Katrin; Dazert, Stefan

Source: Otology & neurotology : official publication of the American Otological Society, American Neurotology Society [and] European Academy of Otology and Neurotology; Aug 2017; vol. 38 (no. 7); p. 996-1004

Publication Date: Aug 2017

Publication Type(s): Journal Article

PubMedID: 28538078

Abstract: OBJECTIVE To evaluate the safety and effectiveness of coupling an active middle ear implant to the short process of the incus in subjects with meatal pathologies. STUDY DESIGN Retrospective STUDY. SETTING Tertiary referral center. PATIENTS Twelve patients suffering from either congenital aural atresia or acquired meatal fibrosis. INTERVENTIONS Implantation of an active middle ear implant with coupling of the actuator to the short process of the incus. MAIN OUTCOME MEASURES Evaluation of the air conduction and bone conduction hearing thresholds pre- and postoperatively, aided warble-tone hearing thresholds, unaided and aided speech recognition in quiet and noise. Questionnaires on subjective benefit and quality of life. RESULTS Mean unaided postoperative air conduction and bone conduction thresholds did not vary significantly from preoperative values (p = 0.55 and 0.082, respectively). The mean functional gain amounted to 42.1±8.8 dB, the mean aided sound field threshold of the implanted ear was 28.6±8.6 dB. No significant difference in functional gain but a close to significant difference in postoperative aided thresholds (p = 0.053) were found between subjects with congenital atresia and acquired fibrosis. Subjective benefit assessed by the global score of the Abbreviated Profile of Hearing Aid Benefit
questionnaire revealed an improvement of 31 to 42%. CONCLUSION Coupling of the actuator to the short process of the incus is a safe and clinically promising procedure in cases where the standard application to the long process is not feasible. In pure conductive hearing loss the benefit is comparable to long incus process coupling, whereas in mixed hearing loss slightly worse RESULTS were observed.

**Database:** Medline


**Author(s):** Fontenot, Tatyana E; Giardina, Christopher K; Teagle, Holly F; Park, Lisa R; Adunka, Oliver F; Buchman, Craig A; Brown, Kevin D; Fitzpatrick, Douglas C

**Source:** International journal of pediatric otorhinolaryngology; Aug 2017; vol. 99 ; p. 120-127

**Publication Date:** Aug 2017

**Publication Type(s):** Journal Article

**PubMedID:** 28688553

**Abstract:** OBJECTIVES To assess electrocochleography (ECochG) to tones as an instrument to account for CI speech perception outcomes in children with auditory neuropathy spectrum disorder (ANSD). MATERIALS & METHODS Children (<18 years) receiving CIs for ANSD (n = 30) and non-ANSD (n = 74) etiologies of hearing loss were evaluated with ECochG using tone bursts (0.25-4 kHz). The total response (TR) is the sum of spectral peaks of responses across frequencies. The compound action potential (CAP) and the auditory nerve neurophonic (ANN) in ECochG waveforms were used to estimate nerve activity and calculate nerve score. Performance on open-set monosyllabic word tests was the outcome measure. Standard statistical methods were applied. RESULTS On average, TR was larger in ANSD than in non-ANSD subjects. Most ANSD (73.3%) and non-ANSD (87.8%) subjects achieved open-set speech perception; TR accounted for 33% and 20% of variability in the outcomes, respectively. In the ANSD group, the PTA accounted for 69.3% of the variability, but there was no relationship with outcomes in the non-ANSD group. In both populations, nerve score was sensitive in identifying subjects at risk for not acquiring open-set speech perception, while the CAP and the ANN were more specific. CONCLUSION In both subject groups, the TRs correlated with outcomes but these measures were notably larger in the ANSD group. There was also strong correlation between PTA and speech perception outcome in ANSD group. In both subject populations, weaker evidence of neural activity was related to failure to achieve open-set speech perception.

**Database:** Medline

12. Factors influencing hearing outcomes in pediatric patients undergoing ossicular chain reconstruction.

**Author(s):** Govil, Nandini; Kaffenberger, Thomas M; Shaffer, Amber D; Chi, David H

**Source:** International journal of pediatric otorhinolaryngology; Aug 2017; vol. 99 ; p. 60-65

**Publication Date:** Aug 2017

**Publication Type(s):** Journal Article

**PubMedID:** 28688567

**Abstract:** OBJECTIVE Ossicular chain disruption in children leads to conductive hearing loss. Few studies have focused on factors influencing successful RESULTS in pediatric ossicular chain reconstruction.
We aim to determine whether demographic or surgical factors affect hearing outcomes in pediatric OCR. METHODS We conducted a retrospective chart review of 120 patients undergoing OCR at our institution, a tertiary care hospital, between 2003 and 2014, with median length of follow-up of 2.2 years (range 0.1-9.3 years). Pediatric patients (<18 years old at time of surgical procedure) who had current procedural terminology (CPT) codes of OCR, and available pre- and post-operative audiograms were included in the STUDY. Demographic information, surgical details, and pre- and post-operative pure-tone averages (PTA), speech reception thresholds (SRT), and air-bone gaps (ABG) were recorded from clinic notes, audiograms and operative reports. Differences between PTA, SRT and ABG pre- and post-operatively, as well as demographic and surgical factors, were evaluated using Wilcoxon rank-sum tests. Factors influencing revision were evaluated using Log-rank tests. RESULTS A total of 120 patients (123 ears) were included. 35.8% of cases were revised, most commonly due to displaced prostheses. 28.5% of surgeries resulted in normal hearing (PTA ≤25 dB) post-operatively. Post-operative SRT and ABG were significantly better in patients with partial ossicular replacement prosthesis (PORP) compared with those with total ossicular replacement prosthesis (TORP) (p = 0.016, 0.027). Titanium prostheses resulted in better post-operative PTA and larger changes in PTA compared with all other materials (p = 0.034, p = 0.038). CONCLUSIONS In our experience, children with titanium prostheses had better hearing outcomes than those with other materials, and children with PORP had better hearing outcomes than those with TORP.

**Database:** Medline

13. Hybrid cochlear implantation: quality of life, quality of hearing, and working performance compared to patients with conventional unilateral or bilateral cochlear implantation.

**Author(s):** Härkönen, Kati; Kivekäs, Ilkka; Kotti, Voitto; Sivonen, Ville; Vasama, Juha-Pekka

**Source:** European archives of oto-rhino-laryngology : official journal of the European Federation of Oto-Rhino-Laryngological Societies (EUFS) : affiliated with the German Society for Oto-Rhino-Laryngology - Head and Neck Surgery; Jul 2017

**Publication Date:** Jul 2017

**Publication Type(s):** Journal Article

**PubMedID:** 28762045

**Abstract:** The objective of the present STUDY is to evaluate the effect of hybrid cochlear implantation (hCI) on quality of life (QoL), quality of hearing (QoH), and working performance in adult patients, and to compare the long-term RESULTS of patients with hCI to those of patients with conventional unilateral cochlear implantation (CI), bilateral CI, and single-sided deafness (SSD) with CI. Sound localization accuracy and speech-in-noise test were also compared between these groups. Eight patients with high-frequency sensorineural hearing loss of unknown etiology were selected in the STUDY. Patients with hCI had better long-term speech perception in noise than uni- or bilateral CI patients, but the difference was not statistically significant. The sound localization accuracy was equal in the hCI, bilateral CI, and SSD patients. QoH was statistically significantly better in bilateral CI patients than in the others. In hCI patients, residual hearing was preserved in all patients after the surgery. During the 3.6-year follow-up, the mean hearing threshold at 125-500 Hz decreased on average by 15 dB HL in the implanted ear. QoL and working performance improved significantly in all CI patients. Hearing outcomes with hCI are comparable to the RESULTS of bilateral CI or CI with SSD, but hearing in noise and sound localization are statistically significantly better than with
unilateral CI. Interestingly, the impact of CI on QoL, QoH, and working performance was similar in all groups.

**Database**: Medline

14. **Speech-in-noise perception in unilateral hearing loss: Relation to pure-tone thresholds and brainstem plasticity.**

**Author(s)**: Vannson, Nicolas; James, Chris J; Fraysse, Bernard; Lescure, Boris; Strelnikov, Kuzma; Deguine, Olivier; Barone, Pascal; Marx, Mathieu

**Source**: Neuropsychologia; Jul 2017; vol. 102 ; p. 135-143

**Publication Date**: Jul 2017

**Publication Type(s)**: Journal Article

**PubMedID**: 28623107

**Abstract**: We investigated speech recognition in noise in subjects with mild to profound levels of unilateral hearing loss. Thirty-five adults were evaluated using an adaptive signal-to-noise ratio (SNR50) sentence recognition threshold test in three spatial configurations. The RESULTS revealed a significant correlation between pure-tone average audiometric thresholds in the poorer ear and SNR thresholds in the two conditions where speech and noise were spatially separated: dichotic - with speech presented to the poorer ear and reverse dichotic - with speech presented to the better ear. This first result suggested that standard pure-tone air-conduction thresholds can be a reliable predictor of speech recognition in noise for binaural conditions. However, a subgroup of 14 subjects was found to have poorer-than-expected speech recognition scores, especially in the reverse dichotic listening condition. In this subgroup 9 subjects had been diagnosed with vestibular schwannoma at stage III or IV likely affecting the lower brainstem function. These subjects showed SNR thresholds in the reverse dichotic condition on average 4dB poorer (higher) than for the other 21 normally-performing subjects. For the 7 of 9 subjects whose vestibular schwannoma was removed, the deficit was no longer apparent on average 5 months following the surgical procedure. These RESULTS suggest that following unilateral hearing loss the capacity to use monaural spectral information is supported by the lower brainstem.

**Database**: Medline

15. **Working Memory and Speech Recognition in Noise Under Ecologically Relevant Listening Conditions: Effects of Visual Cues and Noise Type Among Adults With Hearing Loss.**

**Author(s)**: Miller, Christi W; Stewart, Erin K; Wu, Yu-Hsiang; Bishop, Christopher; Bentler, Ruth A; Tremblay, Kelly

**Source**: Journal of speech, language, and hearing research : JSLHR; Jul 2017 ; p. 1-11

**Publication Date**: Jul 2017

**Publication Type(s)**: Journal Article

**PubMedID**: 28744550


Available in full text at Journal of Speech, Language & Hearing Research - from EBSCOhost
Abstract: Purpose This STUDY evaluated the relationship between working memory (WM) and speech recognition in noise with different noise types as well as in the presence of visual cues.

Method Seventy-six adults with bilateral, mild to moderately severe sensorineural hearing loss (mean age: 69 years) participated. Using a cross-sectional DESIGN, 2 measures of WM were taken: a reading span measure, and Word Auditory Recognition and Recall Measure (Smith, Pichora-Fuller, & Alexander, 2016). Speech recognition was measured with the Multi-Modal Lexical Sentence Test for Adults (Kirk et al., 2012) in steady-state noise and 4-talker babble, with and without visual cues. Testing was under unaided conditions. RESULTS A linear mixed model revealed visual cues and pure-tone average as the only significant predictors of Multi-Modal Lexical Sentence Test outcomes. Neither WM measure nor noise type showed a significant effect. Conclusion The contribution of WM in explaining unaided speech recognition in noise was negligible and not influenced by noise type or visual cues. We anticipate that with audibility partially restored by hearing aids, the effects of WM will increase. For clinical practice to be affected, more significant effect sizes are needed.

Database: Medline

16. How directional microphones affect speech recognition, listening effort and localisation for listeners with moderate-to-severe hearing loss.

Author(s): Picou, Erin M; Ricketts, Todd A

Source: International journal of audiology; Jul 2017; p. 1-10

Publication Date: Jul 2017

Publication Type(s): Journal Article

PubMedID: 28738747

Abstract: OBJECTIVE The purpose of this STUDY was to evaluate the effects of directional microphone use on laboratory measures of sentence recognition, listening effort and localisation. An additional purpose of this STUDY was to evaluate the effects of asymmetric directional microphone use on the same laboratory measures. DESIGN Three hearing aid conditions were evaluated: (1) bilateral omnidirectional microphones, (2) bilateral directional microphones and (3) asymmetric microphones (directional microphone for only one hearing aid). Sentence recognition performance was evaluated using a connected speech test. Listening effort was evaluated using a dual-task paradigm with a response time-based secondary task requiring word categorisation. Localisation was examined using a complex task requiring localisation and recall of speech originating from one of four loudspeakers in the horizontal plane (-60°, -45°, +45°, +60°). STUDY SAMPLE Eighteen adults (M = 61.8 years) with symmetrical, moderate-to-severe hearing loss participated. RESULTS Performance on each task was analysed separately using a repeated measures analysis of variance. RESULTS revealed directional benefits for sentence recognition and listening effort, but microphone setting did not affect localisation. Performance was equivalent with symmetric and asymmetric directional configurations. CONCLUSION Bilateral and asymmetric directional microphone configurations equally improved sentence recognition and listening effort; neither affected localisation or recall.

Database: Medline
17. Factors influencing speech perception in noise for 5-year-old children using hearing aids or cochlear implants.

**Author(s):** Ching, Teresa Yc; Zhang, Vicky W; Flynn, Christopher; Burns, Laura; Button, Laura; Hou, Sanna; McGhie, Karen; Van Buynder, Patricia

**Source:** International journal of audiology; Jul 2017; p. 1-11

**Publication Date:** Jul 2017

**Publication Type(s):** Journal Article

**PubMedID:** 28687057

**Abstract:** OBJECTIVE We investigated the factors influencing speech perception in babble for 5-year-old children with hearing loss who were using hearing aids (HAs) or cochlear implants (CIs). DESIGN Speech reception thresholds (SRTs) for 50% correct identification were measured in two conditions - speech collocated with babble, and speech with spatially separated babble. The difference in SRTs between the two conditions give a measure of binaural unmasking, commonly known as spatial release from masking (SRM). Multiple linear regression analyses were conducted to examine the influence of a range of demographic factors on outcomes. STUDY SAMPLE Participants were 252 children enrolled in the Longitudinal Outcomes of Children with Hearing Impairment (LOCHI) STUDY. RESULTS Children using HAs or CIs required a better signal-to-noise ratio to achieve the same level of performance as their normal-hearing peers but demonstrated SRM of a similar magnitude. For children using HAs, speech perception was significantly influenced by cognitive and language abilities. For children using CIs, age at CI activation and language ability were significant predictors of speech perception outcomes. CONCLUSIONSSpeech perception in children with hearing loss can be enhanced by improving their language abilities. Early age at cochlear implantation was also associated with better outcomes.

**Database:** Medline

18. Comparison of Different Hearing Aid Prescriptions for Children.

**Author(s):** Marriage, Josephine E; Vickers, Deborah A; Baer, Thomas; Glasberg, Brian R; Moore, Brian C J

**Source:** Ear and hearing; Jul 2017

**Publication Date:** Jul 2017

**Publication Type(s):** Journal Article

**PubMedID:** 28691934

**Abstract:** OBJECTIVES To assess whether there are significant differences between speech scores for different hearing aid prescription methods, specifically DSL i/o, DSL V, and NAL-NL1, using age-appropriate closed- and open-set speech tests with young children, DESIGN ed to avoid floor and ceiling effects. DESIGN Participants were 44 children with moderate or severe bilateral hearing loss, 8 aged 2 to 3 years, 15 aged 4 to 5 years, and 21 aged 6 to 9 years. Children wore bilateral hearing aids fitted with each prescription method in turn in a balanced double-blind DESIGN. The speech tests used with each child (and for some tests the levels) were chosen so as to avoid floor and ceiling effects. For the closed-set tests, the level used was selected for each child based on their hearing loss. The tests used were: (1) The closed-set Consonant Confusion Test of word identification; (2) The closed-set Chear Auditory Perception Test (CAPT) of word identification. This has separate sections assessing discrimination of consonants and vowels and detection of consonants; (3) The
open-set Cambridge Auditory Word Lists for testing word identification at levels of 50 and 65 dBA, utilizing 10 consonant-vowel-consonant real words that are likely to be familiar to children aged 3 years or older; (4) The open-set Common Phrases Test to measure the speech reception threshold in quiet; (5) Measurement of the levels required for identification of the Ling 5 sounds, using a recording of the sounds made at the University of Western Ontario. RESULTS Scores for the Consonant Confusion Test and CAPT consonant discrimination and consonant detection were lower for the NAL-NL1 prescription than for the DSL prescriptions. Scores for the CAPT vowel-in-noise discrimination test were higher for DSL V than for either of the other prescriptions. Scores for the Cambridge Auditory Word Lists did not differ across prescriptions for the level of 65 dBA, but were lower for the NAL-NL1 prescription than for either of the DSL prescriptions for the level of 50 dBA. The speech reception threshold measured using the Common Phrases Test and the levels required for identification of the Ling 5 sounds were higher (worse) for the NAL-NL1 prescription than for the DSL prescriptions. CONCLUSIONSThe higher gains prescribed by the DSL i/o and DSL V prescription methods relative to NAL-NL1 led to significantly better detection and discrimination of low-level speech sounds.

Database: Medline


Author(s): van Loon, Maarten Caspar; Smits, Cas; Smit, Conrad F; Hensen, Erik F; Merkus, Paul

Source: Otology & neurotology : official publication of the American Otological Society, American Neurotology Society [and] European Academy of Otology and Neurotology; Jul 2017; vol. 38 (no. 6); p. e100

Publication Date: Jul 2017

Publication Type(s): Journal Article

PubMedID: 28441230

Abstract: OBJECTIVE This STUDY addresses the outcome of cochlear implantation in addition to hearing aid use in patients with asymmetric sensorineural hearing loss. STUDY DESIGN Prospective longitudinal STUDY. SETTING Tertiary referral center. PATIENTS Seven adults with asymmetric sensorineural hearing loss, i.e., less than 30% aided speech recognition in their worst hearing ear and 60 to 85% speech recognition in their best hearing ear. All patients had a postlingual onset of their hearing loss and less than 20 years of auditory deprivation of their worst hearing ear. INTERVENTION Cochlear implantation in the functionally deaf ear. MAIN OUTCOME MEASURES Speech recognition in quiet, speech recognition in noise, spatial speech recognition, localization abilities, music appreciation, and quality of life. Measurements were performed before cochlear implantation and 3, 6, and 12 months after cochlear implantation. RESULTS Before cochlear implantation, the average speech recognition of the ear fitted with a hearing aid was 74%. Cochlear implantation eventually resulted in an average speech recognition of 75%. Bimodal stimulation yielded speech recognition scores of 82, 86, and 88% after 3, 6, and 12 months, respectively. At all time intervals, bimodal stimulation resulted in a significantly better speech recognition as compared with stimulation with only hearing aid or only cochlear implant (CI). Speech recognition in noise and spatial speech recognition significantly improved as well as the ability to localize sounds and the quality of life. CONCLUSION This STUDY demonstrated that patients are able to successfully integrate electrical stimulation with contralateral acoustic amplification and benefit from bimodal
stimulation. Therefore, we think that cochlear implantation should be considered in this particular group of patients, even in the presence of substantial residual hearing on the contralateral side.

Database: Medline

20. Objective Voice Analysis of Pediatric Cochlear Implant Recipients and Comparison With Hearing Aids Users and Hearing Controls.

Author(s): Jafari, Narges; Izadi, Farzad; Salehi, Abolfazl; Dabirmoghaddam, Payman; Yadegari, Fariba; Ebadi, Abbas; Moghadam, Saeed Talebian

Source: Journal of voice : official journal of the Voice Foundation; Jul 2017; vol. 31 (no. 4); p. 505

Publication Date: Jul 2017

Publication Type(s): Journal Article

PubMedID: 27865551

Abstract: OBJECTIVES Phonation is influenced by hearing as a feedback mechanism. The purpose of the present STUDY was to compare selected acoustic parameters in children using cochlear implants (CIs), those using hearing aids (HA), and their normal-hearing (NH) peers. METHODSThe participants were 15 children using CI (mean age: 72 months), 15 children using HA (mean age: 74 months), and 15 NH children (mean age: 77 months). The vowel /a/ was produced to measure perturbation and mean fundamental frequency. The six Persian vowels in /CbVCd/ were obtained to extract vowel duration. Data were analyzed by one-way analysis of variance. RESULTS RESULTS revealed a statistically significant difference between the NH group and the HA group regarding fundamental frequency (F2,51 = 3.443, P < 0.05), jitter local (F2,51 = 1.629, P < 0.05), jitter local absolute (F2,51 = 6.519, P < 0.001), jitter rap (F2,51 = 7.151, P < 0.001), jitter ppq5 (F2,51 = 5.894, P < 0.001), shimmer local (%) (F2,51 = 8.070, P < 0.001), shimmer local (dB) (F2,51 = 3.884, P < 0.05), shimmer apq3 (F2,51 = 4.926, P < 0.05), shimmer apq5 (F2,51 = 8.442, P < 0.001), and harmonic-to-noise ratio (F2,51 = 4.117, P < 0.001). The mean values of the duration of all six vowels were significantly greater in children with CI and HA than in NH children (P < 0.001). CONCLUSIONIt seems that after 8 months of using CI, auditory control of voice production would be enabled. Furthermore, children with hearing impairment potentially regard vowel sound duration as a distinguishing feature, whereas in NH speakers, the duration has the least effect in vowel identification.

Database: Medline


Author(s): Zaidman-Zait, Anat; Dotan, Adi

Source: Journal of deaf studies and deaf education; Jul 2017; vol. 22 (no. 3); p. 257-268

Publication Date: Jul 2017

Publication Type(s): Journal Article

PubMedID: 28334795

Abstract: The current mixed-methods STUDY examined everyday problems among deaf and hard of hearing (DHH) adolescents across various life domains. To better understand the factors influencing levels of perceived stress, the impact of DHH adolescents' coping and pragmatic abilities was also
examined. Thirty DHH adolescents completed questionnaires about everyday stressors and coping, and 13 of these respondents were interviewed regarding their everyday problems. All participants used spoken language and attended mainstream high schools. Teachers evaluated the pragmatic skills of each participant through a communication assessment tool. The quantitative-based RESULTS showed that DHH adolescents perceived greatest stress related to the future, peers, and school, in that order. Considerably less stress was experienced with regard to parents, leisure, and romantic relationships. The qualitative data reflected the context-specific everyday stressors experienced by DHH adolescents and suggested they have been generated by problems related to having a hearing loss, experiences in social interactions, classroom environment, and academic challenges. Importantly, lower pragmatic abilities and increased level of withdrawal coping style were found to be associated with higher perceived stress. The focused on ways in which schools, teachers, and professionals can implement prevention and intervention efforts to adequately support DHH adolescents in facing everyday challenges.

**Database:** Medline

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**22. Stages of change in audiology: comparison of three self-assessment measures.**

**Author(s):** Ingo, Elisabeth; Brännström, K Jonas; Andersson, Gerhard; Lunner, Thomas; Laplante-Lèvesque, Ariane

**Source:** International journal of audiology; Jul 2017; vol. 56 (no. 7); p. 516-520

**Publication Date:** Jul 2017

**Publication Type(s):** Journal Article

**PubMedID:** 28420270

**Abstract:** OBJECTIVE In a clinical setting, theories of health behaviour change could help audiologists and other hearing health care professionals understand the barriers that prevent people with hearing problems to seek audiological help. The transtheoretical (stages of change) model of health behaviour change is one of these theories. It describes a person's journey towards health behaviour change (e.g. seeking help or taking up rehabilitation) in separate stages: precontemplation, contemplation, preparation, action, and, finally, maintenance. A short self-assessment measure of stages of change may guide the clinician and facilitate first appointments. This article describes correlations between three stages of change measures of different lengths, one 24-item and two one-item. DESIGN Participants were recruited through an online hearing screening STUDY. Adults who failed the speech-in-noise recognition screening test and who had never undergone a hearing aid fitting were invited to complete further questionnaires online, including the three stages of change measures. STUDY SAMPLE In total, 224 adults completed the three measures. RESULTS A majority of the participants were categorised as being in one of the information- and help-seeking stage of change (contemplation or preparation). The three stages of change measures were significantly correlated. Our RESULTS support further investigating the use of a one-item measure to determine stages of change in people with hearing impairment.

**Database:** Medline

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**23. The Sophono bone-conduction system: Surgical, audiologic, and quality-of-life outcomes.**

**Author(s):** Mclean, Timothy; Pai, Irumee; Philipatos, Andrew; Gordon, Michael

**Source:** Ear, nose, & throat journal; Jul 2017; vol. 96 (no. 7); p. E28
Abstract: We prospectively evaluated the surgical, audiologic, and quality-of-life outcomes in 5 patients (2 men and 3 women, aged 22 to 64 years (mean: 41.8)-who were implanted with the Sophono Alpha 2 MPO Processor. The indications for implantation of this bone-conduction device included recurrent ear canal infections with hearing aids (n = 3), single-sided deafness (n = 1), and patient preference in view of difficulty using a conventional hearing aid (n = 1). In addition to the patient with single-sided deafness, 3 patients had a bilateral mixed hearing loss and 1 had a bilateral conductive hearing loss. Outcomes measures included surgical complications, functional gain (FG), speech discrimination in quiet and noise, and patient satisfaction as determined by the Glasgow Benefit Inventory (GBI) and the Entific Medical Systems bone-anchored hearing aid questionnaire (BAQ). The only postsurgical complication noted was a minor skin reaction and pain in 1 patient that resolved with conservative management. In the 3 patients with the mixed hearing loss, the mean FG was 13.3, 20.0, 11.7, and 11.7 dB at 0.5, 1, 2, and 4 kHz, respectively; in the patient with the bilateral conductive hearing loss, the FG was 10, 25, 10, and 15 dB at the same frequencies. Speech discrimination scores with the Sophono device were comparable to those seen with conventional hearing aids. After implantation, all 5 patients experienced a positive quality-of-life outcome according to the GBI, although 1 of them had only a marginal improvement. On follow-up, all patients reported that they remained satisfied with their implant and that they used their device all day long. We conclude that the Sophono bone-conduction system is a safe and effective option that should be considered for patients with a mixed or conductive hearing loss who are unable to use a conventional hearing aid, as well as for those with single-sided deafness.

Database: Medline
collected on the preoperative audiology, imaging findings, and neurological assessment. CI outcomes were measured using the Speech Intelligibility Rating (SIR), Category of Auditory Performance (CAP), and Infant-Toddler Meaningful Auditory Integration Scale (IT-MAIS). RESULTS Eleven patients underwent cochlear implantation, 45% had severe-to-profound hearing loss, and 55% had bilateral profound hearing loss. The mean age at initial assessment was 2.1 years (median 1.7, range 0.6-7.5) and the mean age of implantation was 4.0 years (median 2.5, range 0.9-11.8). The mean length of follow-up was 4.8 years (median 2.3, range 1.5-14). Six patients had bilateral simultaneous implantation (55%), four bilateral sequential (36%), and one unilateral (9%). Nine patients had white matter changes on magnetic resonance imaging, largely in the periventricular and cortical regions. Of the 11 patients, 4 (36%) had associated neurological comorbidities and 3 (27%) had additional neurocognitive developmental delay of varying severity. The majority of patients showed improvement in auditory outcomes. No statistically significant correlation was found between age of implantation, neurocognitive, and neurological comorbidities or length of follow-up and hearing outcomes. CONCLUSION While the overall outcomes were mixed, most children in our cohort were found to benefit from cochlear implantation. Our data also highlight the significant neurodevelopmental comorbidities associated with cCMV and their negative impact on CI outcomes. With the recent advances in medical treatment, this underlines the importance of multidisciplinary management of these patients.

Database: Medline


Author(s): Rahne, Torsten; Clauß, Franziska; Plontke, Stefan K; Keyßer, Gernot

Source: Clinical rheumatology; Jul 2017; vol. 36 (no. 7); p. 1501-1510

Publication Date: Jul 2017

Publication Type(s): Journal Article

PubMedID: 28455828

Abstract: Hearing loss in patients with autoimmune diseases, such as systemic lupus erythematosus (SLE), granulomatosis with polyangiitis (GPA, Wegener’s granulomatosis), or rheumatoid arthritis (RA), is controversial. Many studies lack measurements of bone-conduction thresholds to sufficiently differentiate between sensorineural hearing loss and conductive hearing loss. In addition, many studies lack control groups or comparisons to an age-related normal hearing threshold. This STUDY investigates hearing performance with an extended audiological battery using psychoacoustic and objective measures. A total of 22 adults with RA, 16 with GPA, 20 with SLE, and two age- and gender-matched control groups (n = 34 for GPA and RA and n = 42 for SLE) were included. Pure-tone hearing thresholds, speech perception in quiet and noise, tympanometry, and high-resolution otoacoustic emissions were assessed. GPA patients exhibited impaired pure-tone hearing compared to the control group, whereas SLE and RA patients did not. In GPA patients, a larger air-bone gap indicated conductive hearing loss. In addition, speech perception was reduced exclusively in GPA patients. A significant correlation was found between hearing loss and both the cumulative steroid dose and number of organ manifestations in GPA and SLE patients. Our data indicate that GPA and SLE patients are at moderate-to-high risk of conductive hearing loss. In contrast, RA patients are at low risk of disease-associated hearing loss.

Database: Medline

**Author(s):** Carew, P; Mensah, F K; Rance, G; Flynn, T; Poulakis, Z; Wake, M

**Source:** Child: care, health and development; Jun 2017

**Publication Date:** Jun 2017

**Publication Type(s):** Journal Article

**PubMedID:** 28612343

Available in full text at Child: Care, Health and Development - from John Wiley and Sons

**Abstract:** BACKGROUND Universal newborn hearing screening (UNHS) targets moderate or greater hearing loss. However, UNHS also frequently detects children with mild loss that are receiving early treatment. The benefits of this approach are not yet established. We aimed to (i) compare language and psychosocial outcomes between four hearing loss detection systems for children aged 5-8 years with congenital mild-moderate hearing loss; (ii) determine whether age of detection predicts outcomes; and (iii) compare outcomes between children identified via well-established UNHS and the general population. METHODS Linear regression adjusted for potential confounding factors was used throughout. Via a quasi-experimental DESIGN, language and psychosocial outcomes were compared across four population-based Australian systems of hearing loss detection: opportunistic detection, born 1991-1993, n = 50; universal risk factor referral, born 2003-2005, n = 34; newly established UNHS, born 2003-2005, n = 41; and well-established UNHS, born 2007-2010, n = 21. In pooled analyses, we examined whether age of detection predicted outcomes. Outcomes were similarly compared between the current well-established UNHS system and typically developing children in the Early Language in Victoria STUDY, born 2003, n = 1217. RESULTS Age at diagnosis and hearing aid fitting fell steadily across the four systems. For moderate losses, mean expressive language (P for trend .05) and receptive vocabulary (P for trend .06) improved across the four systems, but benefit was not obvious for mild losses. In pooled analyses, diagnosis before age six months predicted better language outcomes for moderate losses. Children with mild-moderate losses exposed to well-established UNHS continue to experience expressive language scores well below children in the general population (adjusted mean difference -8.9 points, 95% CI -14.7 to -3.1). CONCLUSION Treatment arising from UNHS appears to be clearly benefitting children with moderate hearing losses. However, rigorous trials are needed to quantify benefits, versus costs and potential harms, of early aiding of children with mild losses.

**Database:** Medline


**Author(s):** Halliday, Lorna F; Tuomainen, Outi; Rosen, Stuart

**Source:** Journal of speech, language, and hearing research : JSLHR; Jun 2017; vol. 60 (no. 6); p. 1551-1567

**Publication Date:** Jun 2017

**Publication Type(s):** Journal Article

**PubMedID:** 28547010

Abstract: Purpose The goal of this STUDY was to examine language development and factors related to language impairments in children with mild to moderate sensorineural hearing loss (MMHL).

Method Ninety children, aged 8-16 years (46 children with MMHL; 44 aged-matched controls), were administered a battery of standardized language assessments, including measures of phonological processing, receptive and expressive vocabulary and grammar, word and nonword reading, and parental report of communication skills. Group differences were examined after controlling for nonverbal ability.

RESULTS Children with MMHL performed as well as controls on receptive vocabulary and word and nonword reading. They also performed within normal limits, albeit significantly worse than controls, on expressive vocabulary, and on receptive and expressive grammar, and worse than both controls and standardized norms on phonological processing and parental report of communication skills. However, there was considerable variation in performance, with 26% showing evidence of clinically significant oral or written language impairments. Poor performance was not linked to severity of hearing loss nor age of diagnosis. Rather, outcomes were related to nonverbal ability, maternal education, and presence/absence of family history of language problems.

Conclusions Clinically significant language impairments are not an inevitable consequence of MMHL. Risk factors appear to include lower maternal education and family history of language problems, whereas nonverbal ability may constitute a protective factor.

Database: Medline


Author(s): Lee, Jeon Mi; Jung, Jinsei; Moon, In Seok; Kim, Sung Huhn; Choi, Jae Young

Source: The Laryngoscope; Jun 2017; vol. 127 (no. 6); p. 1435-1441

Publication Date: Jun 2017

Publication Type(s): Journal Article

PubMedID: 27560038

Abstract: OBJECTIVES /HYPOTHESIS We compared the audiologic benefits of active middle ear implants with those of passive middle ear implants with hearing aids in mixed hearing loss, and also compared the outcomes of stapes vibroplasty with those of round window vibroplasty. STUDY DESIGN Retrospective chart review. METHODSThirty-four patients with mixed hearing loss due to chronic otitis media were treated with a middle ear implant. Of these, 15 were treated with a passive middle ear implant (conventional ossiculoplasty with a partial ossicular replacement prosthesis), nine with an active middle ear implant coupling to the stapes, and 10 with an active middle ear implant coupling to the round window. Patients underwent pure-tone/free-field audiograms and speech discrimination tests before surgery and 6 months after surgery, and the RESULTS of these tests were compared. RESULTS The active middle ear implant resulted in better outcomes than the passive middle ear implant with hearing aids at mid to high frequencies (P < .05). Patients who received either a stapes vibroplasty or a round window vibroplasty showed comparable hearing gain except at 8,000 Hz (48.9 dB vs. 31.0 dB, P < .05). Patients who received a stapes vibroplasty showed an improvement even in bone conduction at 1,000 Hz and 2,000 Hz (both P < .05). CONCLUSIONS Active middle ear implantation could be a better option than treatment with passive middle ear implants with hearing aids for achieving rehabilitation in patients with mixed hearing loss.

Database: Medline

Author(s): Dewyer, Nicholas A; Jiradejvong, Patpong; Henderson Sabes, Jennifer; Limb, Charles J
Source: The Laryngoscope; May 2017
Publication Date: May 2017
Publication Type(s): Journal Article
PubMedID: 28543040
Available in full text at Laryngoscope, The - from John Wiley and Sons

Abstract:OBJECTIVES /HYPOTHESISDevelop and validate an automated smartphone word recognition test. STUDY DESIGN Cross-sectional case-control diagnostic test comparison. METHODSAn automated word recognition test was developed as an app for a smartphone with earphones. English-speaking adults with recent audiograms and various levels of hearing loss were recruited from an audiology clinic and were administered the smartphone word recognition test. Word recognition scores determined by the smartphone app and the gold standard speech audiometry test performed by an audiologist were compared. RESULTS Test scores for 37 ears were analyzed. Word recognition scores determined by the smartphone app and audiologist testing were in agreement, with 86% of the data points within a clinically acceptable margin of error and a linear correlation value between test scores of 0.89. CONCLUSIONSThe WordRec automated smartphone app accurately determines word recognition scores. LEVEL OF EVIDENCE3b Laryngoscope, 2017.

Database: Medline

Author(s): Rohlfs, Anna-Katharina; Friedhoff, Johannes; Bohnert, Andrea; Breitfuss, Achim; Hess, Markus; Müller, Frank; Strauch, Anke; Röhrs, Marianne; Wiesner, Thomas
Source: European journal of pediatrics; Apr 2017; vol. 176 (no. 4); p. 475-486
Publication Date: Apr 2017
Publication Type(s): Journal Article
PubMedID: 28132094

Abstract:Despite the introduction of universal newborn hearing screening (UNHS), unilateral hearing loss (UHL) is sometimes recognized late. This diagnostic delay has adverse repercussions, given the importance of binaural hearing for the development of normal auditory processing. It is incorrect to maintain that unilateral hearing is the minimum requirement for adequate speech development and that hearing aid provision is consequently unnecessary. In our retrospective STUDY, hearing aid provision resulted in improved directional and selective hearing (quiet and noisy environments) and, compared with their chronically ill counterparts, the children in our STUDY displayed superior health-related quality of life (HRQoL) scores in all areas. On the basis of the RESULTS, the authors conclude that even mild hearing losses (from an auditory threshold of 30 to 40 dB) should have the opportunity for hearing aid provision. A selective literature review was conducted in PubMed and
textbooks and with reference to national and international guidelines. Early diagnosis and treatment of UHL have a positive effect on verbal-cognitive, linguistic, communicative, and socio-emotional development, as demonstrated by neurophysiological studies. Among the treatment modalities with differing effects on the quality of binaural hearing, cochlear implants are now used increasingly in children with hearing loss bordering on deafness. CONCLUSION Published evidence and clinical experience support early diagnosis and treatment. Wherever feasible, hearing aid provision before or at the end of the first year of life is recommended for children with UHL. What is Known: • Almost 30 years ago, poor academic performance was reported in children with unilateral hearing loss (UHL). • Despite improvements in treatment options, it is traditionally held that unilateral hearing is the minimum requirement for adequate speech development and hearing aid provision is unnecessary. What is New: • Academic and behavioral deficits in children with UHL may be mediated by deficiencies in the default mode network. • Published evidence supports the recommendation for hearing aid provision before or at the end of the first year of life in children with UHL.

**Database:** Medline

31. Systematic review to evaluate the safety, efficacy and economical outcomes of the Vibrant Soundbridge for the treatment of sensorineural hearing loss.

**Author(s):** Bruchhage, Karl-Ludwig; Leichtle, Anke; Schönweiler, Rainer; Todt, Ingo; Baumgartner, Wolf-Dieter; Frenzel, Henning; Wollenberg, Barbara

**Source:** European archives of oto-rhino-laryngology : official journal of the European Federation of Oto-Rhino-Laryngological Societies (EUFOS) : affiliated with the German Society for Oto-Rhino-Laryngology - Head and Neck Surgery; Apr 2017; vol. 274 (no. 4); p. 1797-1806

**Publication Date:** Apr 2017

**Publication Type(s):** Journal Article Review

**PubMedID:** 27796557

**Abstract:** Introduced in the late 90s, the active middle ear implant Vibrant Soundbridge (VSB) is nowadays used for hearing rehabilitation in patients with mild to severe sensorineural hearing loss (SNHL) unable to tolerate conventional hearing aids. In experienced hands, the surgical implantation is fast done, safe and highly standardized. Here, we present a systematic review, after more than 15 years of application, to determine the efficacy/effectiveness and cost-effectiveness, as well as patient satisfaction with the VSB active middle ear implant in the treatment of mild to severe SNHL. A systematic search of electronic databases, investigating the safety and effectiveness of the VSB in SNHL plus medical condition resulted in a total of 1640 papers. After removing duplicates, unrelated articles, screening against inclusion criteria and after in-depth screening, the number decreased to 37 articles. 13 articles were further excluded due to insufficient outcome data. 24 studies remained to be systematically reviewed. Data was searched on safety, efficacy and economical outcomes with the VSB. Safety-oriented outcomes included complication/adverse event rates, damage to the middle/inner ear, revision surgery/explant rate/device failure and mortality. Efficacy outcomes were divided into audiological outcomes, including hearing thresholds, functional gain, speech perception in quiet and noise, speech recognition thresholds, real ear insertion gain and subjective outcomes determined by questionnaires and patient-oriented scales. Data related to quality of life (QALY, ICER) were considered under economical outcomes. The VSB turns out to be a highly reliable and a safe device which significantly improves perception of speech in noisy situations with a high sound quality. In addition, the subjective benefit of the VSB was found to be mostly significant in all
Finally, implantation with the VSB proved to be a cost-effective and justified health care intervention.

**Database:** Medline

### 32. Universal newborn hearing screening: methods and RESULTS, obstacles, and benefits.

**Author(s):** Wroblewska-Seniuk, Katarzyna E; Dabrowski, Piotr; Szyfter, Witold; Mazela, Jan

**Source:** Pediatric research; Mar 2017; vol. 81 (no. 3); p. 415-422

**Publication Date:** Mar 2017

**Publication Type(s):** Journal Article Review

**PubMedID:** 27861465

**Abstract:** The incidence of sensorineural hearing loss ranges from 1 to 3 per 1,000 live births in term healthy neonates, and 2-4 per 100 in high-risk infants, a 10-fold increase. Early identification and intervention with hearing augmentation within 6 mo yields optimal effect. If undetected and without treatment, significant hearing impairment may negatively impact speech development and lead to disorders in psychological and mental behaviors. Hearing screening programs in newborns enable detection of hearing impairment in the first days after birth. Programs to identify hearing deficit have significantly improved over the two decades, and their implementation continues to grow throughout the world. Initially based on risk factors, these programs identified only 50-75% of infants with hearing loss. Current recommendations are to conduct universal hearing screening in all infants. Techniques used primarily include automated auditory brainstem responses and otoacoustic emissions that provide noninvasive recordings of physiologic auditory activity and are easily performed in neonates and infants. The aim of this review is to present the OBJECTIVES, benefits, and RESULTS of newborn hearing screening programs including the pros and cons of universal vs. selective screening. A brief history and the anticipated future development of these programs will also be discussed.

**Database:** Medline

### 33. The Effect of Signal-to-Noise Ratio on Linguistic Processing in a Semantic Judgment Task: An Aging STUDY.

**Author(s):** Stanley, Nicholas; Davis, Tara; Estis, Julie

**Source:** Journal of the American Academy of Audiology; Mar 2017; vol. 28 (no. 3); p. 209-221

**Publication Date:** Mar 2017

**Publication Type(s):** Journal Article

**PubMedID:** 28277212

**Abstract:** Backgound Ager effects on speech understanding in noise have primarily been assessed through speech recognition tasks. Recognition tasks, which focus on bottom-up, perceptual aspects of speech understanding, intentionally limit linguistic and cognitive factors by asking participants to only repeat what they have heard. On the other hand, linguistic processing tasks require bottom-up and top-down (linguistic, cognitive) processing skills and are, therefore, more reflective of speech understanding abilities used in everyday communication. The effect of signal-to-noise ratio (SNR) on linguistic processing ability is relatively unknown for either young (YAs) or older adults (OAs).

**Purpose:** To determine if reduced SNRs would be more deleterious to the linguistic processing of
OAs than YAs, as measured by accuracy and reaction time in a semantic judgment task in competing speech. RESEARCH DESIGN In the semantic judgment task, participants indicated via button press whether word pairs were a semantic Match or No Match. This task was performed in quiet, as well as, +3, 0, -3, and -6 dB SNR with two-talker speech competition. STUDY SAMPLE Seventeen YAs (20-30 yr) with normal hearing sensitivity and 17 OAs (60-68 yr) with normal hearing sensitivity or mild-to-moderate sensorineural hearing loss within age-appropriate norms. DATA COLLECTION AND ANALYSIS Accuracy, reaction time, and false alarm rate were measured and analyzed using a mixed DESIGN analysis of variance. RESULTS A decrease in SNR level significantly reduced accuracy and increased reaction time in both YAs and OAs. However, poor SNRs affected accuracy and reaction time of Match and No Match word pairs differently. Accuracy for Match pairs declined at a steeper rate than No Match pairs in both groups as SNR decreased. In addition, reaction time for No Match pairs increased at a greater rate than Match pairs in more difficult SNRs, particularly at -3 and -6 dB SNR. False-alarm rates indicated that participants had a response bias to No Match pairs as the SNR decreased. Age-related differences were limited to No Match pair accuracies at -6 dB SNR. CONCLUSION The ability to correctly identify semantically matched word pairs was more susceptible to disruption by a poor SNR than semantically unrelated words in both YAs and OAs. The effect of SNR on this semantic judgment task implies that speech competition differentially affected the facilitation of semantically related words and the inhibition of semantically incompatible words, although processing speed, as measured by reaction time, remained faster for semantically matched pairs. Overall, the semantic judgment task in competing speech elucidated the effect of a poor listening environment on the higher order processing of words.

34. The role of bone conduction hearing aids in congenital unilateral hearing loss: A systematic review.

Author(s): Liu, C Carrie; Livingstone, Devon; Yunker, Warren K

Source: International journal of pediatric otorhinolaryngology; Mar 2017; vol. 94; p. 45-51

Publication Date: Mar 2017

Publication Type(s): Journal Article Review

PubMedID: 28167010

Abstract: OBJECTIVES To systematically review the literature on the audiological and/or quality of life benefits of a bone conduction hearing aid (BCHA) in children with congenital unilateral conductive or sensorineural deafness. METHODSA systematic search was performed according to the PRISMA guidelines using the PubMed, Medline, and Embase databases. Data were collected on the following outcomes of interest: speech reception threshold, speech discrimination, sound localization, and quality of life measures. Given the heterogeneity of the data for quantitative analysis, the RESULTS are qualitatively summarized. RESULTS Eight studies were included in the review. Four studies examined the audiological outcomes associated with bone conduction hearing aid implantation. There was a consistent gain in speech reception thresholds and speech discrimination, especially in noisy environments. RESULTS pertaining to sound localization was inconsistent. The studies that examined quality of life measures reported a high usage rate of BCHAs among children. Quality of life improvements are reported with suggested benefit in the subdomain of learning. CONCLUSION Given the potential benefits of a BCHA, along with the fact that it can be safely trialed using a headband, it is reasonable to trial a BCHA in children with congenital unilateral deafness.
Should the trial offer audiological and/or quality of life benefits for the individual child, then BCHA implantation can be considered.

**Database:** Medline

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35. **Hearing loss in children with otitis media with effusion: a systematic review.**

**Author(s):** Cai, Ting; McPherson, Bradley

**Source:** International journal of audiology; Feb 2017; vol. 56 (no. 2); p. 65-76

**Publication Date:** Feb 2017

**Publication Type(s):** Journal Article

**PubMedID:** 27841699

**Abstract:**
OBJECTIVES Otitis media with effusion (OME) is the presence of non-purulent inflammation in the middle ear. Hearing impairment is frequently associated with OME. Pure tone audiometry and speech audiometry are two of the most primarily utilised auditory assessments and provide valuable behavioural and functional estimation on hearing loss. This paper was designed to review and analyse the effects of the presence of OME on children's listening abilities. DESIGN A systematic and descriptive review. STUDY DESIGN Twelve articles reporting frequency-specific pure tone thresholds and/or speech perception measures in children with OME were identified using PubMed, Ovid, Web of Science, ProQuest and Google Scholar search platforms. RESULTS The hearing loss related to OME averages 18-35 dB HL. The air conduction configuration is roughly flat with a slight elevation at 2000 Hz and a nadir at 8000 Hz. Both speech-in-quiet and speech-in-noise perception have been found to be impaired. CONCLUSIONSOME imposes a series of disadvantages on hearing sensitivity and speech perception in children. Further studies investigating the full range of frequency-specific pure tone thresholds, and that adopt standardised speech test materials are advocated to evaluate hearing related disabilities with greater comprehensiveness, comparability and enhanced consideration of their real life implications.

**Database:** Medline

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36. **Clinical outcomes following cochlear implantation in children with inner ear anomalies.**

**Author(s):** Isaiah, Amal; Lee, Daniel; Lenes-Voit, Felicity; Sweeney, Melissa; Kutz, Walter; Isaacson, Brandon; Roland, Peter; Lee, Kenneth H

**Source:** International journal of pediatric otorhinolaryngology; Feb 2017; vol. 93; p. 1-6

**Publication Date:** Feb 2017

**Publication Type(s):** Journal Article

**PubMedID:** 28109477

**Abstract:**
OBJECTIVE A significant proportion of children with congenital hearing loss who are candidates for cochlear implants (CIs) may have inner ear malformations (IEMs). Surgical and speech outcomes following CI in these children have not been widely reported. METHODSThe charts of children who were evaluated for a CI between 1/1/1986 and 12/31/2014 at a university-based tertiary level pediatric cochlear implant center were reviewed. Principal inclusion criteria included (i) age 1-18 years, (ii) history of bilateral severe to profound sensorineural hearing loss, and (iii) limited benefit from binaural amplification. Exclusion criteria included (i) underlying diagnosis of neurodevelopmental disorder and (ii) lack of follow up for speech assessment if a CI was performed.
The following outcome measures were reviewed: (i) imaging findings with magnetic resonance imaging or high resolution computed tomography, (ii) intraoperative complications, and (iii) speech perception categorized as the ability to perceive closed set, open set, or none. RESULTS The prevalence of IEMs was 27% (102 of 381), of which 79% were bilateral. Cochlear dysplasia accounted for 30% (40 of 136) of the anomalies. Seventy-eight of the 102 patients received a CI (78%). Surgery was noted to be challenging in 24% (19 of 78), with a perilymphatic gusher being the most common intraoperative finding. Cochlear dysplasia, vestibular dysplasia and cochlear nerve hypoplasia were associated with poor speech perception (open OR closed set speech recognition scores, 0-23%), although the outcomes in children with enlarged vestibular aqueduct were similar to those of children with normal inner ear anatomy (65%). CONCLUSIONS Cochlear implantation is safe in children with IEMs. However, the speech perception outcomes are notably below those of patients with normal anatomy, with the exception of when an enlarged vestibular aqueduct is present.

Database: Medline

37. Masked speech perception across the adult lifespan: Impact of age and hearing impairment.

Author(s): Goossens, Tine; Vercammen, Charlotte; Wouters, Jan; van Wieringen, Astrid

Source: Hearing research; Feb 2017; vol. 344; p. 109-124

Publication Date: Feb 2017

Publication Type(s): Journal Article

PubMedID: 27845259

Abstract: As people grow older, speech perception difficulties become highly prevalent, especially in noisy listening situations. Moreover, it is assumed that speech intelligibility is more affected in the event of background noises that induce a higher cognitive load, i.e., noises that result in informational versus energetic masking. There is ample evidence showing that speech perception problems in aging persons are partly due to hearing impairment and partly due to age-related declines in cognition and suprathreshold auditory processing. In order to develop effective rehabilitation strategies, it is indispensable to know how these different degrading factors act upon speech perception. This implies disentangling effects of hearing impairment versus age and examining the interplay between both factors in different background noises of everyday settings. To that end, we investigated open-set sentence identification in six participant groups: a young (20-30 years), middle-aged (50-60 years), and older cohort (70-80 years), each including persons who had normal audiometric thresholds up to at least 4 kHz, on the one hand, and persons who were diagnosed with elevated audiometric thresholds, on the other hand. All participants were screened for (mild) cognitive impairment. We applied stationary and amplitude modulated speech-weighted noise, which are two types of energetic maskers, and unintelligible speech, which causes informational masking in addition to energetic masking. By means of these different background noises, we could look into speech perception performance in listening situations with a low and high cognitive load, respectively. Our RESULTS indicate that, even when audiometric thresholds are within normal limits up to 4 kHz, irrespective of threshold elevations at higher frequencies, and there is no indication of even mild cognitive impairment, masked speech perception declines by middle age and decreases further on to older age. The impact of hearing impairment is as detrimental for young and middle-aged as it is for older adults. When the background noise becomes cognitively more demanding, there is a larger decline in speech perception, due to age or hearing impairment. Hearing impairment seems to be the main factor underlying speech perception
problems in background noises that cause energetic masking. However, in the event of informational masking, which induces a higher cognitive load, age appears to explain a significant part of the communicative impairment as well. We suggest that the degrading effect of age is mediated by deficiencies in temporal processing and central executive functions. This STUDY may contribute to the improvement of auditory rehabilitation programs aiming to prevent aging persons from missing out on conversations, which, in turn, will improve their quality of life.

Database: Medline


Author(s): Zorilă, Tudor-Cătălin; Stylianou, Yannis; Flanagan, Sheila; Moore, Brian C J

Source: The Journal of the Acoustical Society of America; Jan 2017; vol. 141 (no. 1); p. 189

Publication Date: Jan 2017

Publication Type(s): Journal Article

PubMedID: 28147616

Abstract: Four algorithms designed to enhance the intelligibility of speech when noise is added after processing were evaluated under the constraint that the speech should have the same loudness before and after processing, as determined using a loudness model. The algorithms applied spectral modifications and two of them included dynamic-range compression. On average, the methods with dynamic-range compression required the least level adjustment to equate loudness for the unprocessed and processed speech. Subjects with normal-hearing (experiment 1) and mild-to-moderate hearing loss (experiment 2) were tested using unmodified and enhanced speech presented in speech-shaped noise (SSN) and a competing speaker (CS). The RESULTS showed (a) the algorithms with dynamic-range compression yielded the largest intelligibility gains in both experiments and for both types of background; (b) the algorithms without dynamic-range compression either yielded benefit only with the SSN or yielded no consistent benefit; (c) speech reception thresholds for unprocessed speech were higher for hearing-impaired than for normal-hearing subjects, by about 2 dB for the SSN and 6 dB for the CS. It is concluded that the enhancement methods incorporating dynamic-range compression can improve intelligibility under the equal-loudness constraint for both normal-hearing and hearing-impaired subjects and for both steady and fluctuating backgrounds.

Database: Medline


Author(s): Villeneuve, Alexandre; Hommet, Caroline; Aussedat, Charles; Lescanne, Emmanuel; Reffet, Kevin; Bakhos, David

Source: European archives of oto-rhino-laryngology : official journal of the European Federation of Oto-Rhino-Laryngological Societies (EUFOS) : affiliated with the German Society for Oto-Rhino-Laryngology - Head and Neck Surgery; Jan 2017; vol. 274 (no. 1); p. 151-157

Publication Date: Jan 2017

Publication Type(s): Journal Article Validation Studies

PubMedID: 27554665
Abstract: The objective of this STUDY is to assess the validity of ASSR as a complementary diagnostic test for peripheral hearing loss by proving a significant correlation between behavioral thresholds and ASSR. The DESIGN used in this STUDY is monocentric prospective STUDY from November 2014 to April 2015. The setting used in this STUDY is the ENT-Head and Neck Surgery Department and Geriatrics Department in a French Regional and University Hospital. The participants are patients over 75 years with cognitive impairment (Alzheimer's disease or mild-cognitive impairment) with a Mini-Mental State Examination score under 27/30 and without hearing aids. Exclusion criteria were: otoscopic and middle ear abnormalities, retro-cochlear lesion, other types of dementia, and central nervous system disease altering cerebral laterализation. The intervention used in this STUDY is pure-tone audiometry, speech audiometry, dichotic listening test, and auditory steady-state responses recording. The correlations between these exams were studied with Pearson's correlation coefficient and Student's t test. RESULTS were significant if p < 0.05. Twenty-three ears were analyzed from 12 patients. There were six women and six men with cognitive impairment, mean age 82.1 (±4.6) years, and mean MMSE score that was 21.3/30 (±5.7). The correlation between pure-tone audiometry and ASSR was significant for all frequencies: r = 0.55 (p = 0.006) for 500 Hz, r = 0.58 (p = 0.005) for 1000 Hz, r = 0.61 (p = 0.003) for 2000 Hz, and r = 0.66 (p = 0.002) for 4000 Hz. There was no significant correlation between the MMSE and the difference between ASSR and PTA on each frequency. The dichotic listening test showed a right ear advantage (50.9%, p = 0.039). The ASSR in patients with cognitive impairment and understanding troubles is a promising complementary technique to estimate the hearing thresholds.

Database: Medline

40. Audiological profile of patients treated for childhood cancer.

Author(s): Liberman, Patricia Helena Pecora; Goffi-Gomez, Maria Valéria Schmidt; Schultz, Christiane; Novaes, Paulo Eduardo; Lopes, Luiz Fernando

Source: Brazilian journal of otorhinolaryngology; 2016; vol. 82 (no. 6); p. 623-629

Publication Date: 2016

Publication Type(s): Journal Article

PubMedID: 27156673

Abstract: OBJECTIVE To characterize the hearing loss after cancer treatment, according to the type of treatment, with identification of predictive factors. METHOD Two hundred patients who had cancer in childhood were prospectively evaluated. The mean age at diagnosis was 6 years, and at the audiometric assessment, 21 years. The treatment of the participants included chemotherapy without using platinum derivatives or head and neck radiotherapy in 51 patients; chemotherapy using cisplatin without radiotherapy in 64 patients; head and neck radiotherapy without cisplatin in 75 patients; and a combined treatment of head and neck radiotherapy and chemotherapy with cisplatin in ten patients. Patients underwent audiological assessment, including pure tone audiometry, speech audiometry, and immittanceometry. RESULTS The treatment involving chemotherapy with cisplatin caused 41.9% and 47.3% hearing loss in the right and left ear, respectively, with a 11.7-fold higher risk of hearing loss in the right ear and 17.6-fold higher in the left ear versus patients not treated with cisplatin (p<0.001 and p<0.001, respectively). Children whose cancer diagnosis occurred after the age of 6 have shown an increased risk of hearing loss vs. children whose diagnosis occurred under 6 years of age (p=0.02). CONCLUSION The auditory feature found after the cancer treatment was a symmetrical bilateral sensorineural hearing loss.
Chemotherapy with cisplatin proved to be a risk factor, while head and neck radiotherapy was not critical for the occurrence of hearing loss.

**Database:** Medline

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41. Progressive Hearing Loss in Early Childhood.

**Author(s):** Barreira-Nielsen, Carmen; Fitzpatrick, Elizabeth; Hashem, Serena; Whittingham, JoAnne; Barrowman, Nicholas; Aglipay, Mary

**Source:** Ear and hearing; 2016; vol. 37 (no. 5); p. e311

**Publication Date:** 2016

**Publication Type(s):** Journal Article

**PubMedID:** 27556364

**Abstract:**

OBJECTIVES: Deterioration in hearing thresholds in children is of concern due to the effect on language development. Before universal newborn hearing screening (UNHS), accurate information on the progression of hearing loss was difficult to obtain due to limited information on hearing loss onset. The objective of this population-based STUDY was to document the proportion of children who experienced progressive loss in a cohort followed through a UNHS program in one region of Canada. We explored risk factors for progression including risk indicators, audiologic, and clinical characteristics of children. We also investigated deterioration in hearing as a function of age. For this STUDY, two working definitions of progressive hearing loss were adopted: (1) a change of ≥20 dB in the 3 frequencies (500, 1000, and 2000 Hz) pure-tone average, and (2) a decrease of ≥10 dB at two or more adjacent frequencies between 500 and 4000 Hz or a decrease in 15 dB at one octave frequency in the same frequency range. DESIGN: Population-based data were collected prospectively on a cohort of children identified from 2003 to 2013 after the implementation of UNHS. Clinical characteristics including risk indicators (as per Joint Committee on Infant Hearing), age at diagnosis, type and severity of hearing loss, and initial audiologic information were recorded when children were first identified with hearing loss. Serial audiometric RESULTS were extracted from the medical charts for this STUDY. Differences between children with progressive and stable hearing loss were explored using χ tests. Association between risk indicators and progressive hearing loss was assessed through logistic regression. The cumulative amount of deterioration in hearing from 1 to 4 years of age was also examined. RESULTS: Our analysis of 330 children (251 exposed to screening) with detailed audiologic records showed that 158 (47.9%) children had some deterioration (at least ≥10 dB and) in hearing thresholds in at least one ear. The 158 children included 76 (48.1%) with ≥20 dB loss in pure-tone average in at least one ear and 82 (51.9%) with less deterioration in hearing levels (≥10 but <20 dB). In the children with progressive hearing loss, of 131 children initially diagnosed with bilateral loss, 75 (57.3%) experienced deterioration in 1 ear and 56 (112 ears; 42.7%) in both ears (total of 187 ears). Of 27 children with an initial diagnosis of unilateral loss, 25 experienced deterioration in the impaired ear and 5 in the normal-hearing ear, progressing to bilateral hearing loss. Within 4 years after diagnosis, the mean decrease in hearing for children with progressive loss was 25.9 dB (SD: 16.4) in the right ear and 28.3 dB (SD: 12.9) in the left ear. We explored the risk factors for hearing loss identified by Joint Committee on Infant Hearing where there were sufficient numbers in our sample. On multivariate analysis, there was no statistically significant relationship between most risk indicators examined (neonatal intensive care unit admission, family history, syndromes, and postnatal infections) and the likelihood of progressive loss. However, the presence of craniofacial anomalies was inversely associated with risk of progressive hearing loss (odds ratio = 0.27; 95% confidence interval: 0.10, 0.71; p = 0.01), that is,
these children were more likely to have stable hearing. CONCLUSIONSGiven that almost half of the children in this cohort experienced deterioration in hearing, close postneonatal monitoring of hearing following early hearing loss identification is essential to ensure optimal amplification and therapy.

Database: Medline

42. Impact of Hearing Aid Technology on Outcomes in Daily Life II: Speech Understanding and Listening Effort.

Author(s): Johnson, Jani A; Xu, Jingjing; Cox, Robyn M

Source: Ear and hearing; 2016; vol. 37 (no. 5); p. 529-540

Publication Date: 2016

Publication Type(s): Journal Article

PubMedID: 27556363

Abstract: OBJECTIVES Modern hearing aid (HA) devices include a collection of acoustic signal-processing features DESIGN ed to improve listening outcomes in a variety of daily auditory environments. Manufacturers market these features at successive levels of technological sophistication. The features included in costlier premium hearing devices are DESIGN ed to result in further improvements to daily listening outcomes compared with the features included in basic hearing devices. However, independent research has not substantiated such improvements. This research was DESIGN ed to explore differences in speech-understanding and listening-effort outcomes for older adults using premium-feature and basic-feature HAs in their daily lives. DESIGN For this participant-blinded, repeated, crossover trial 45 older adults (mean age 70. 3 years) with mild-to-moderate sensorineural hearing loss wore each of four pairs of bilaterally fitted HAs for 1 month. HAs were premium- and basic-feature devices from two major brands. After each 1-month trial, participants' speech-understanding and listening-effort outcomes were evaluated in the laboratory and in daily life. RESULTS Three types of speech-understanding and listening-effort data were collected: measures of laboratory performance, responses to standardized self-report questionnaires, and participant diary entries about daily communication. The only statistically significant superiority for the premium-feature HAs occurred for listening effort in the loud laboratory condition and was demonstrated for only one of the tested brands. CONCLUSIONSThe predominant complaint of older adults with mild-to-moderate hearing impairment is difficulty understanding speech in various settings. The combined RESULTS of all the outcome measures used in this research suggest that, when fitted using scientifically based practices, both premium- and basic-feature HAs are capable of providing considerable, but essentially equivalent, improvements to speech understanding and listening effort in daily life for this population. For HA providers to make evidence-based recommendations to their clientele with hearing impairment it is essential that further independent research investigates the relative benefit/deficit of different levels of hearing technology across brands and manufacturers in these and other real-world listening domains.

Database: Medline

43. Using the Digits-In-Noise Test to Estimate Age-Related Hearing Loss.

Author(s): Koole, Arne; Nagtegaal, A Paul; Homans, Nienke C; Hofman, Albert; Baatenburg de Jong, Rob J; Goedegebure, André
OBJECTIVE Age-related hearing loss is common in the elderly population. Timely detection and targeted counseling can lead to adequate treatment with hearing aids. The Digits-In-Noise (DIN) test was developed as a relatively simple test to assess hearing acuity. It is a potentially powerful test for the screening of large populations, including the elderly. However, until to date, no sensitivity or specificity rates for detecting hearing loss were reported in a general elderly population. The purpose of this STUDY was to evaluate the ability of the DIN test to screen for mild and moderate hearing loss in the elderly. DESIGN Data of pure-tone audiometry and the DIN test were collected from 3327 adults ages above 50 (mean: 65), as part of the Rotterdam STUDY, a large population-based cohort STUDY. Sensitivity and specificity of the DIN test for detecting hearing loss were calculated by comparing speech reception threshold (SRT) with pure-tone average threshold at 0.5, 1, 2, and 4 kHz (PTA0.5,1,2,4). Receiver operating characteristics were calculated for detecting >20 and >35 dB HL average hearing loss at the best ear. RESULTS Hearing loss varied greatly between subjects and, as expected, increased with age. High frequencies and men were more severely affected. A strong correlation (R = 0.80, p < 0.001) was found between SRTs and PTA0.5,1,2,4. Moreover, 65% of variance in SRT could be explained by pure-tone thresholds. For detecting mild or moderate hearing loss, receiver operating characteristics showed areas under the curve of 0.86 and 0.98, respectively. CONCLUSION This STUDY demonstrates that the DIN test has excellent test characteristics when screening for moderate hearing loss (or more) in an elderly population. It is less suited to screen for mild hearing loss. The test is easy to complete and should be suitable for implementation as an automated self-test in hearing screening programs. Ultimately, when combined with active counseling, hearing screening could lead to higher hearing aid coverage in the hearing impaired elderly.
using the Interacoustics AC40 clinical audiometer and ER-3A insert earphones. IA value was calculated by subtracting good ear bone conduction hearing thresholds of the worst airway hearing threshold. RESULTS In our measuring for 0.125-8.0 kHz frequency were performed in our audiometry device separately for each frequency. IA amount in the RESULTS we found in 1000 Hz and below frequencies about 75-110 dB range average is 89±5dB, in above 1000 Hz frequencies in 50-95 dB range and average it is changed to 69±5dB. CONCLUSION According to the obtained findings the quantity of melting in the transition between the ears are increasing with the insert earphones. The insert earphone should be beside supraaural earphone that is routinely used in clinics. Difficult masking applications due to the increase in the value of IA can be easily done with insert earphones.

Database: Medline

45. The Role of Telemedicine in Auditory Rehabilitation: A Systematic Review.

Author(s): Bush, Matthew L; Thompson, Robin; Irungu, Catherine; Ayugi, John

Source: Otology & neurotology : official publication of the American Otological Society, American Neurotology Society [and] European Academy of Otology and Neurotology; Dec 2016; vol. 37 (no. 10); p. 1466-1474

Abstract: OBJECTIVE The purpose of this STUDY was to assess the feasibility and effectiveness of live telemedicine applications in hearing amplification and cochlear implantation. DATA SOURCES AND STUDY SELECTION A systematic search was performed in PubMed, MEDLINE, PsychINFO, CINALH, and Web of Science to identify peer-reviewed research. Inclusion criteria were titles containing words from the search terms 1) audiology, otolaryngology, and hearing impairment, 2) rehabilitative methods, and 3) telemedicine. Exclusion criteria were: 1) non-English articles, and 2) non-original research. DATA EXTRACTION AND SYNTHESISTwelve eligible studies were identified. The studies employed a prospective DESIGN in nine of the articles and retrospective case series in three. The use of telemedicine for the provision of cochlear implant services was examined in eight of the articles and with hearing aids in four of the articles. The types of services include intraoperative cochlear implant telemetry; implant programming and assessment of electrode-specific measures and speech recognition after implantation. Hearing aid programming and remote gain assessments were also reported. Many studies assess patient and provider satisfaction along with encounter time comparison. The studies occurred from 2009 to 2014 and took place in seven countries. CONCLUSION This review examined the feasibility of remote telemedicine connection to provide in auditory rehabilitation services through hearing aids and cochlear implants. There are significant concerns regarding Internet bandwidth limitations for remote clinics. There is a paucity of research examining reimbursement and cost-effectiveness for services. Further prospective research investigating cost-effectiveness and bandwidth limitations is warranted to assess long-term sustainability of remote audiological rehabilitative service delivery.

Database: Medline

46. A review of the perceptual effects of hearing loss for frequencies above 3 kHz.
Background: Hearing loss caused by exposure to intense sounds usually has its greatest effects on audiometric thresholds at 4 and 6 kHz. However, in several countries compensation for occupational noise-induced hearing loss is calculated using the average of audiometric thresholds for selected frequencies up to 3 kHz, based on the implicit assumption that hearing loss for frequencies above 3 kHz has no material adverse consequences. This paper assesses whether this assumption is correct. Design: Studies are reviewed that evaluate the role of hearing for frequencies above 3 kHz. Results: Several studies show that frequencies above 3 kHz are important for the perception of speech, especially when background sounds are present. Hearing at high frequencies is also important for sound localization, especially for resolving front-back confusions. Conclusion: Hearing for frequencies above 3 kHz is important for the ability to understand speech in background sounds and for the ability to localize sounds. The audiometric threshold at 4 kHz and perhaps 6 kHz should be taken into account when assessing hearing in a medico-legal context.

Database: Medline

47. Comparing audiological test results obtained from a sound processor attached to a Softband with direct and magnetic passive bone conduction hearing implant systems.

Author(s): Kara, Ahmet; Iseri, Mete; Durgut, Merve; Topdag, Murat; Ozturk, Murat

Source: European archives of oto-rhino-laryngology: official journal of the European Federation of Oto-Rhino-Laryngological Societies (EUFOS): affiliated with the German Society for Oto-Rhino-Laryngology - Head and Neck Surgery; Dec 2016; vol. 273 (no. 12); p. 4193-4198

Abstract: The aim of this study was to compare audiological test results obtained from a sound processor (SP) attached to a Softband with those obtained from direct (abutment connection) bone conduction implant systems and magnetic passive bone conduction implant systems with different magnet strengths on patients implanted at our clinic. Twenty-four patients who were implanted with either an abutment or magnetic bone conduction implant system between January 2012 and December 2014 were analyzed for hearing results, such as free-field hearing thresholds, direct bone conduction hearing thresholds, and speech discrimination scores with aided and unaided conditions. Both magnetic and direct osseointegrated bone conduction implant systems, as well as the Softband system, provide good hearing outcomes when compared with unaided performance; however, the abutment connection system gives better hearing thresholds in the higher frequencies. No significant difference in hearing gain was found between the Softband system, magnet 5, and magnet used by the patient. Magnetic and direct bone conduction hearing implant systems are both effective for rehabilitation of conductive and mixed hearing loss when conventional hearing aids cannot be used. However, patients with high-frequency hearing loss may be better suited to an abutment connection system if they are not satisfied with high-frequency hearing gains provided via the trial Softband system preoperatively and should be counseled accordingly.
48. Functions of the inner ear in psoriatic arthritis.

**Author(s):** Gunes, Akif; Gundogdu, Ibrahim; Mutlu, Murad; Ozturk, Erhan Arif; Cakci, Aytul; Akin, Istemihan

**Source:** Auris, nasus, larynx; Dec 2016; vol. 43 (no. 6); p. 626-631

**Publication Date:** Dec 2016

**Publication Type(s):** Journal Article

**PubMedID:** 26915283

**Abstract:**

**OBJECTIVE** This STUDY aimed to investigate whether there is a negative impact as a result of psoriatic arthritis disease of the inner ear function. **METHOD** Twenty-four successive patients and 38 healthy volunteers, younger than 60 years of age, who were followed up for at least for one year in the outpatient clinics of physical therapy and rehabilitation with the diagnosis of PsA according to CASPAR criteria (17) and who did not complain of any hearing impairment were included in the STUDY. Distortion-product otoacoustic emission (DPOAE) values between 1kHz and 4kHz, tympanometric examination RESULTS, stapes reflex values, speech reception threshold (SRT) and speech discrimination (SD) values, pure-tone values between 250 and 8000Hz and high-frequency values between 10,000, 12,500 and 16,000Hz were analyzed. Statistical comparisons between both groups were performed using chi-square test and Mann-Whitney U test. p<0.05 was accepted as the level of statistical significance. **RESULTS** Our STUDY population consisted of 24 [9 male (37.5%) and 15 female (62.5%)] patients with a mean age of 47.2±11.28 (range, 28-59) years and 38 [16 male (42.1%) and 22 female (57.9%)] healthy volunteers with a mean age of 44.39±8.12 (range, 29-59) years as the control group. Mean duration of arthritis was 7.62±4.88 years. In the evaluation of hearing frequencies of the patients between 4000 and 6000Hz, a statistically significant difference was found relative to the control group (p<005). DPOAE values of the patients were analyzed within the 1000-4000Hz interval. When compared with the control group, a statistically significant difference was found at 3000 and 4000Hz (p<005). **CONCLUSION** Our STUDY provides strong evidence suggesting the necessity of monitorization of these patients regarding sensorineural hearing loss so as to take measures against the development of hearing loss during early stage, which may be another disability in patients with PsA, which is itself a potential cause of severe disability.

**Database:** Medline

49. A Look into the Crystal Ball for Children Who Are Deaf or Hard of Hearing: Needs, Opportunities, and Challenges.

**Author(s):** Yoshinaga-Itano, Christine; Wiggin, Mallene

**Source:** Seminars in speech and language; Nov 2016; vol. 37 (no. 4); p. 252-258

**Publication Date:** Nov 2016

**Publication Type(s):** Journal Article

**PubMedID:** 27701701

**Abstract:**

Hearing is essential for the development of speech, spoken language, and listening skills. Children previously went undiagnosed with hearing loss until they were 2.5 or 3 years of age. The
auditory deprivation during this critical period of development significantly impacted long-term
listening and spoken language outcomes. Due to the advent of universal newborn hearing
screening, the average age of diagnosis has dropped to the first few months of life, which sets the
stage for outcomes that include children with speech, spoken language, and auditory skill testing in
the normal range. However, our work is not finished. The future holds even greater possibilities for
children with hearing loss.

Database: Medline

50. Validation of a Self-Administered Audiometry Application: An Equivalence STUDY.

Author(s): Whitton, Jonathon P; Hancock, Kenneth E; Shannon, Jeffrey M; Polley, Daniel B
Source: The Laryngoscope; Oct 2016; vol. 126 (no. 10); p. 2382-2388
Publication Date: Oct 2016
Publication Type(s): Journal Article Validation Studies
PubMedID: 27140227
Available in full text at Laryngoscope, The - from John Wiley and Sons

Abstract: OBJECTIVES /HYPOTHESESTDTo compare hearing measurements made at home using self-administered audiometric software against audiological tests performed on the same subjects in a clinical setting STUDY DESIGN Prospective, crossover equivalence STUDY METHODS In experiment 1, adults with varying degrees of hearing loss (N = 19) performed air-conduction audiometry, frequency discrimination, and speech recognition in noise testing twice at home with an automated tablet application and twice in sound-treated clinical booths with an audiologist. The accuracy and reliability of computer-guided home hearing tests were compared to audiologist administered tests. In experiment 2, the reliability and accuracy of pure-tone audiometric RESULTS were examined in a separate cohort across a variety of clinical settings (N = 21). RESULTS Remote, automated audiograms were statistically equivalent to manual, clinic-based testing from 500 to 8,000 Hz (P ≤ .02); however, 250 Hz thresholds were elevated when collected at home. Remote and sound-treated booth testing of frequency discrimination and speech recognition thresholds were equivalent (P ≤ 5 × 10(-5) ). In the second experiment, remote testing was equivalent to manual sound-booth testing from 500 to 8,000 Hz (P ≤ .02) for a different cohort who received clinic-based testing in a variety of settings. CONCLUSION These data provide a proof of concept that several self-administered, automated hearing measurements are statistically equivalent to manual measurements made by an audiologist in the clinic. The demonstration of statistical equivalency for these basic behavioral hearing tests points toward the eventual feasibility of monitoring progressive or fluctuant hearing disorders outside of the clinic to increase the efficiency of clinical information collection. LEVEL OF EVIDENCE 2b. Laryngoscope, 126:2382-2388, 2016.

Database: Medline

51. Use of Baby Isao Simulator and Standardized Parents in Hearing Screening and Parent Counseling Education.

Author(s): Alanazi, Ahmad A; Nicholson, Nannette; Atcherson, Samuel R; Franklin, Clifford; Anders, Michael; Nagaraj, Naveen; Franklin, Jennifer; Highley, Patricia
Source: American journal of audiology; Sep 2016; vol. 25 (no. 3); p. 211-223
Publication Date: Sep 2016
Publication Type(s): Journal Article
PubMedID: 27653494
Available in full text at American Journal of Audiology - from EBSCOhost
Available in full text at American Journal of Audiology - from EBSCOhost
Available in full text at American Journal of Audiology - from ProQuest

Abstract: PURPOSE The primary purpose of this STUDY was to test the effect of the combined use of trained standardized parents and a baby simulator on students' hearing screening and parental counseling knowledge and skills. METHOD A one-group pretest-posttest quasi-experimental STUDY DESIGN was used to assess self-ratings of confidence in knowledge and skills and satisfaction of the educational experience with standardized parents and a baby simulator. The mean age of the 14 audiology students participating in this STUDY was 24.79 years (SD = 1.58). Participants completed a pre- and postevent questionnaire in which they rated their level of confidence for specific knowledge and skills. Six students (2 students in each scenario) volunteered to participate in the infant hearing screening and counseling scenarios, whereas others participated as observers. All participants participated in the briefing and debriefing sessions immediately before and after each of 3 scenarios. After the last scenario, participants were asked to complete a satisfaction survey of their learning experience using simulation and standardized parents. RESULTS Overall, the pre- and post-simulation event questionnaire revealed a significant improvement in the participants' self-rated confidence levels regarding knowledge and skills. The mean difference between pre- and postevent scores was 0.52 (p < .01). The mean satisfaction level was 4.71 (range = 3.91-5.00; SD = 0.30) based on a Likert scale, where 1 = not satisfied and 5 = very satisfied. CONCLUSION The RESULTS of this novel educational activity demonstrate the value of using infant hearing screening and parental counseling simulation sessions to enhance student learning. In addition, this STUDY demonstrates the use of simulation and standardized parents as an important pedagogical tool for audiology students. Students experienced a high level of satisfaction with the learning experience.

Database: Medline

52. Language and speech outcomes of children with hearing loss and additional disabilities: identifying the variables that influence performance at five years of age.

Author(s): Cupples, Linda; Ching, Teresa Y C; Button, Laura; Leigh, Greg; Marnane, Vivienne; Whitfield, Jessica; Gunnourie, Miriam; Martin, Louise
Source: International journal of audiology; Sep 2016 ; p. 1-12
Publication Date: Sep 2016
Publication Type(s): Journal Article
PubMedID: 27630013

Abstract: OBJECTIVE This STUDY examined language and speech outcomes in young children with hearing loss and additional disabilities. DESIGN Receptive and expressive language skills and speech output accuracy were evaluated using direct assessment and caregiver report. RESULTS were analysed first for the entire participant cohort, and then to compare RESULTS for children with hearing aids (HAs) versus cochlear implants (CIs). STUDY SAMPLE A population-based cohort of 146 five-year-old children with hearing loss and additional disabilities took part. RESULTS Across all
participants, multiple regressions showed that better language outcomes were associated with milder hearing loss, use of oral communication, higher levels of cognitive ability and maternal education, and earlier device fitting. Speech output accuracy was associated with use of oral communication only. Average outcomes were similar for children with HAs versus CIs, but their associations with demographic variables differed. For HA users, RESULTS resembled those for the whole cohort. For CI users, only use of oral communication and higher cognitive ability levels were significantly associated with better language outcomes. CONCLUSIONSThe RESULTS underscore the importance of early device fitting for children with additional disabilities. Strong cannot be drawn for CI users given the small number of participants with complete data.

**Database:** Medline


**Author(s):** Le Prell, Colleen G; Brungart, Douglas S

**Source:** Otology & neurotology : official publication of the American Otological Society, American Neurotology Society [and] European Academy of Otology and Neurotology; Sep 2016; vol. 37 (no. 8); p. e295

**Publication Date:** Sep 2016

**Publication Type(s):** Journal Article

**PubMedID:** 27518138

**Abstract:** OBJECTIVE In humans, the accepted clinical standards for detecting hearing loss are the behavioral audiogram, based on the absolute detection threshold of pure-tones, and the threshold auditory brainstem response (ABR). The audiogram and the threshold ABR are reliable and sensitive measures of hearing thresholds in human listeners. However, recent RESULTS from noise-exposed animals demonstrate that noise exposure can cause substantial neurodegeneration in the peripheral auditory system without degrading pure-tone audiometric thresholds. It has been suggested that clinical measures of auditory performance conducted with stimuli presented above the detection threshold may be more sensitive than the behavioral audiogram in detecting early-stage noise-induced hearing loss in listeners with audiometric thresholds within normal limits. METHODSSupra-threshold speech-in-noise testing and supra-threshold ABR responses are reviewed here, given that they may be useful supplements to the behavioral audiogram for assessment of possible neurodegeneration in noise-exposed listeners. CONCLUSIONSupra-threshold tests may be useful for assessing the effects of noise on the human inner ear, and the effectiveness of interventions DESIGN ed to prevent noise trauma. The current state of the science does not necessarily allow us to define a single set of best practice protocols. Nonetheless, we encourage investigators to incorporate these metrics into test batteries when feasible, with an effort to standardize procedures to the greatest extent possible as new reports emerge.

**Database:** Medline

54. Tablet Audiometry in Canada's North: A Portable and Efficient Method for Hearing Screening.

**Author(s):** Rourke, Ryan; Kong, David Chan Chun; Bromwich, Matthew

**Source:** Otolaryngology--head and neck surgery : official journal of American Academy of Otolaryngology-Head and Neck Surgery; Sep 2016; vol. 155 (no. 3); p. 473-478
BACKGROUND: Access to hearing health care is limited in many parts of the world, creating a lack of prompt diagnosis, which further complicates treatment. The use of portable audiometry for hearing loss testing can improve access to diagnostics in marginalized populations. Our study objectives were twofold: (1) to determine the prevalence of hearing loss in children aged 4 to 11 years in Iqaluit, Nunavut, and (2) to test and demonstrate the use of our tablet audiometer as a portable hearing-testing device in a remote location.

STUDY DESIGN: Prospective cross-sectional observational.

SETTING: Remote elementary schools in 3 Canadian Northern communities.

SUBJECTS AND METHODS: Tablet audiometers were used to test hearing in 218 children. Air conduction pure tones thresholds were obtained at 500, 1000, 2000, and 4000 Hz. Children with hearing loss ≥30 dB in either ear were referred for audiology services.

RESULTS: Tablet audiometry screening testing revealed abnormal results in 14.8% of the study participants. No significant difference in the rate of hearing loss was seen by sex; however, the rate of hearing loss decreased significantly with increasing age. The median duration of the hearing test was 5 minutes 30 seconds.

CONCLUSIONS: Of the study population, 14.8% tested positive for hearing loss based on our interactive tablet audiometer. In this setting, the tablet audiometer was both time efficient and largely language independent. This type of testing is valuable for providing much-needed hearing health care for high-risk populations in rural and remote areas where audiology services are often unavailable.

Database: Medline

55. Hearing loss in Down Syndrome revisited - 15 years later.

Author(s): Manickam, Vairavan; Shott, Gordon S; Heithaus, Dorsey; Shott, Sally R

Source: International journal of pediatric otorhinolaryngology; Sep 2016; vol. 88; p. 203-207

Publication Date: Sep 2016

Publication Type(s): Journal Article

PubMedID: 27497415

Abstract: OBJECTIVE: In 2001, the senior authors published a study investigating hearing loss in young children (ages 11 months to 3.8 years) with Down Syndrome (DS). We re-visit this same study population to review current audiologic status, the incidence of pressure equalization tube (PET) placement(s), and rate of tympanic membrane (TM) perforations. We aim to better understand the natural history of ear disease and hearing loss in DS and assess potential complications.

METHODS: This retrospective chart review included 57 children with DS who previously completed in 2006, a 5-year, longitudinal study investigating otolaryngologic problems in DS. Updated audiologic data was available for 54. Audiograms, age of ear specific testing, PET placement(s), and tympanic membrane (TM) descriptions were reviewed. RESULTS: Ages ranged from 14 to 18 years (mean 16.34 years). PET placement occurred in 88.8%, with mean of 3.5 procedures. 30% of PET’s were placed after age 6. Ear specific testing was obtained in 92.5% (mean age 4.54 years). Normal hearing was present in 44% (right ear) and 38% (left ear). "Functional" hearing levels, defined as normal or mild hearing loss and speech reception threshold ≤ 30 dB, occurred in 83.3%. Sensorineural/mixed hearing loss was present in 11% (right ear) and 9% (left ear). TM perforations rate was 17%. No cholesteatomas were found.

CONCLUSION: Chronic otitis media and indications for PET’s persist as children with DS age. Although functional hearing...
occurred in 83.3%, there was an overall decrease in hearing levels as the children aged. Tympanic membrane perforations occurred in 17%. Continued surveillance of otologic and audiologic status in patients with Down syndrome is recommended.

**Database:** Medline

56. **Is age a limiting factor for adaptation to cochlear implant?**

**Author(s):** Hiel, Anne-Lise; Gerard, Jean-Marc; Decat, Monique; Deggouj, Naima

**Source:** European archives of oto-rhino-laryngology : official journal of the European Federation of Oto-Rhino-Laryngological Societies (EUFOS) : affiliated with the German Society for Oto-Rhino-Laryngology - Head and Neck Surgery; Sep 2016; vol. 273 (no. 9); p. 2495-2502

**Publication Date:** Sep 2016

**Publication Type(s):** Journal Article

**PubMedID:** 26676874

**Abstract:** The influence of age on adaptation to cochlear implant (CI) is still being contested in the literature. The aim of this STUDY was twofold. First, hearing outcomes in quiet conditions were compared between CI users implanted over and under the age of 70 years. Second, the effect of the duration of auditory deprivation was investigated. The STUDY DESIGN is a retrospective review and the setting is in academic tertiary referral center. One hundred and twenty-one postlingually deafened implanted adults participated in this STUDY. Hearing outcomes were compared between 121 postlingually deafened adults implanted under 40, between 40 and 70, and over 70 years of age. Speech audiometry measurements were taken at 1, 3, 6, 12, 24 and 60 months post-cochlear implantation (pCI), in quiet conditions only. Hearing outcomes were significantly better only at 1 year pCI in the youngest group compared to the two older groups. No significant difference was observed between the middle-aged and eldest subjects at any time. The influence of the severe-to-profound hearing loss (SPHL) duration was investigated and found to be equally distributed among the different age groups. Good hearing outcomes in elderly patients are not secondary to a difference in SPHL duration. Age should not be a limiting factor for cochlear implantation decision.

**Database:** Medline

57. **Cochlear Implants in Subjects Over Age 65: Quality of Life and Audiological Outcomes.**

**Author(s):** Aimoni, Claudia; Ciorba, Andrea; Hatzopoulos, Stavros; Ramacciotti, Giulia; Mazzoli, Manuela; Bianchini, Chiara; Rosignoli, Monica; Skarżyński, Henryk; Skarżyński, Piotr H

**Source:** Medical science monitor : international medical journal of experimental and clinical research; Aug 2016; vol. 22 ; p. 3035-3042

**Publication Date:** Aug 2016

**Publication Type(s):** Journal Article

**PubMedID:** 27567995

**Abstract:** BACKGROUND Cochlear implants (CIs) have been recognized as a safe and effective means for profound hearing loss rehabilitation in children and adults and recently their use has been extended to subjects over 65 years of age. The aim of this paper was to assess indices related to changes in the quality of life (QoL) in elderly CI recipients. MATERIAL AND METHODS A case-control paradigm was used to assess the effects of CIs on the QoL. Forty-two subjects were assigned to the
Case group and 15 subjects to the Control group. All 57 subjects were affected by profound hearing loss and had received a CI. Audiological data were collected from both groups at: (i) 1 month pre-implantation [T1]; (ii) 1 day pre-implantation [T2]; (iii) 30 days post-implantation, with CI used in free field [T3]; and (iv) 12 months post-implantation, with CI used in a free field [T4]. The QoL was assessed via a Glasgow Benefit Inventory (GBI) questionnaire, adapted to otolaryngology. To compare subjects across different ages with varying degrees of speech development, a perception parameter was used from the Speech Perception Categories test developed by Geers and Moog.

RESULTS Hearing performance was considerably improved after CI. In relation to the hearing performance at time T1, statistically significant threshold gains were observed in both groups in the T3 and T4 observation windows. At time T4, a threshold gain of 70 dB HL in the Case group and a gain of 84 dB HL in the Control group were observed. With speech therapy rehabilitation, a perception level of 6 was reached by 80.0% of patients in the Case group and by 100% of patients in the Control group. In terms of QoL, both groups showed improved post-CI scores. Statistical differences were observed between the 2 groups, with the Control group outperforming the Case group in all but the social section. Despite age-related changes in auditory system and prolonged hearing deprivation, CIs offer audiological and QoL benefits in the elderly.

Database: Medline

58. Comprehensive Audiometric Analysis of Hearing Impairment and Tinnitus After Cisplatin-Based Chemotherapy in Survivors of Adult-Onset Cancer.

Author(s): Frisina, Robert D; Wheeler, Heather E; Fossa, Sophie D; Kerns, Sarah L; Fung, Chunkit; Sesso, Howard D; Monahan, Patrick O; Feldman, Darren R; Hamilton, Robert; Vaughn, David J; Beard, Clair J; Budnick, Amy; Johnson, Eileen M; Ardeshir-Rouhani-Fard, Shirin; Einhorn, Lawrence H; Lipshultz, Steven E; Dolan, M Eileen; Travis, Lois B

Source: Journal of clinical oncology : official journal of the American Society of Clinical Oncology; Aug 2016; vol. 34 (no. 23); p. 2712-2720

Publication Date: Aug 2016

Publication Type(s): Journal Article

PubMedID: 27354478


Abstract: PURPOSE Cisplatin is widely used but highly ototoxic. Effects of cumulative cisplatin dose on hearing loss have not been comprehensively evaluated in survivors of adult-onset cancer. PATIENTS AND METHODS Comprehensive audiological measures were conducted on 488 North American male germ cell tumor (GCT) survivors in relation to cumulative cisplatin dose, including audiograms (0.25 to 12 kHz), tests of middle ear function, and tinnitus. American Speech-Language-Hearing Association criteria defined hearing loss severity. The geometric mean of hearing thresholds (0.25 to 12 kHz) summarized overall hearing status consistent with audiometric guidelines. Patients were sorted into quartiles of hearing thresholds of age- and sex-matched controls. RESULTS Increasing cumulative cisplatin dose (median, 400 mg/m(2); range, 200 to 800 mg/m(2)) was significantly related to hearing loss at 4, 6, 8, 10, and 12 kHz (P trends, .021 to .300 mg/m(2)) were associated with greater American Speech-Language-Hearing Association-defined hearing loss severity (odds ratio, 1.59; P = .0066) and worse normative-matched quartiles (odds ratio, 1.33; P = .093) compared with smaller doses. Almost one in five (18%) patients had severe to profound hearing loss. Tinnitus (40% patients) was significantly correlated with reduced hearing at each
frequency (P < .001). Noise-induced damage (10% patients) was unaffected by cisplatin dose (P = .59). Hypertension was significantly related (P = .0066) to overall hearing threshold (4 to 12 kHz) in age- and cisplatin dose-adjusted analyses. Middle ear deficits occurred in 22.3% of patients but, as expected, were not related to cytotoxic drug dosage. CONCLUSION Follow-up of adult-onset cancer survivors given cisplatin should include routine inquiry for hearing status and tinnitus, referral to audiologists as clinically indicated, and hypertension control. Patients should be urged to avoid noise exposure, ototoxic drugs, and other factors that further damage hearing.

Database: Medline

59. Hearing and Cognitive Impairment and the Role of the International Classification of Functioning, Disability and Health as a Rehabilitation Framework.
Author(s): Lind, Christopher; Meyer, Carly; Young, Jessica
Source: Seminars in hearing; Aug 2016; vol. 37 (no. 3); p. 200-215
Publication Date: Aug 2016
Publication Type(s): Journal Article Review
PubMedID: 27489399
Abstract: The International Classification of Functioning, Disability and Health (ICF) has been applied widely in the literature to describe and differentiate the broad implications of hearing impairment (HI) and cognitive impairment (CI) on communication. As CI and HI are largely age-related conditions, the likelihood of comorbidity of these conditions is high. In the context of an aging population, the prevalence of comorbidity is likely to rise, yet much of the clinical assessment and intervention in HI and CI occur separately. The benefit of addressing the dual impact of these conditions is of increasing clinical importance for all clinicians working with older adults and for audiologists and speech pathologists in particular. In this article, the ICF model will be applied to explore the everyday implications of HI and CI. Furthermore, the clinical implications of the ICF model are explored with particular respect to communication assessment and intervention options. The potential benefit of combining activity- and participation-focused interventions currently offered for HI and CI independently is examined.
Database: Medline

60. What Is the International Classification of Functioning, Disability and Health and Why Is It Relevant to Audiology?
Author(s): Meyer, Carly; Grenness, Caitlin; Scarinci, Nerina; Hickson, Louise
Source: Seminars in hearing; Aug 2016; vol. 37 (no. 3); p. 163-186
Publication Date: Aug 2016
Publication Type(s): Journal Article Review
PubMedID: 27489397
Abstract: The World Health Organization’s International Classification of Functioning, Disability and Health (ICF) is widely used in disability and health sectors as a framework to describe the far-reaching effects of a range of health conditions on individuals. This biopsychosocial framework can be used to describe the experience of an individual in the components of body functions, body structures, and activities and participation, and it considers the influence of contextual factors
environmental and personal) on these components. Application of the ICF in audiology allows the use of a common language between health care professionals in both clinical and research settings. Furthermore, the ICF is promoted as a means of facilitating patient-centered care. In this article, the relevance and application of the ICF to audiology is described, along with clinical examples of its application in the assessment and management of children and adults with hearing loss. Importantly, the skills necessary for clinicians to apply the ICF effectively are discussed.

Database: Medline


Author(s): Dillon, Harvey; Beach, Elizabeth Francis; Seymour, John; Carter, Lyndal; Golding, Maryanne

Source: International journal of audiology; Aug 2016; vol. 55 (no. 8); p. 463-471

Publication Date: Aug 2016

Publication Type(s): Journal Article Evaluation Studies

PubMedID: 27138873

Abstract: OBJECTIVE In 2006 the National Acoustic Laboratories was commissioned to create a telephone-based hearing screening test. DESIGN NAL developed 'Telscreen', a speech-in-noise test modelled on the Dutch and UK telephone tests. The first version, Telscreen I, had several novel features: individual scoring of digits; individual equalization of digit intelligibility; and accuracy-determined test termination. Evaluation of Telscreen I revealed that it did not discriminate satisfactorily between those with and without hearing impairment. Subsequently Telscreen II, which included a novel sensitized masking noise, was developed. STUDY SAMPLE Telscreen I was evaluated by 105 participants (22-86 years), 37% with normal hearing (all thresholds 20 dB HL in the test ear). Telscreen II was evaluated by 75 participants (25-86 years), 33% with normal hearing, 67% with hearing impairment. RESULTS Correlations between Telscreen I and hearing thresholds, \( r = 0.57 \), and hearing disability scores, \( r = 0.51 \) were highly significant, but lower than expected. Correlations for Telscreen II were higher: \( r = 0.77 \) and 0.65, respectively. Telscreen II was found to have high sensitivity: 90%; and specificity: 90.2%. CONCLUSION Telscreen II is an efficient, reliable, and innovative hearing screening test that provides a solid foundation for future tests delivered via mobile and internet technologies.

Database: Medline

62. Validating self-reporting of hearing-related symptoms against pure-tone audiometry, otoacoustic emission, and speech audiometry.

Author(s): Fredriksson, Sofie; Hammar, Oscar; Magnusson, Lennart; Kähäri, Kim; Persson Waye, Kerstin

Source: International journal of audiology; Aug 2016; vol. 55 (no. 8); p. 454-462

Publication Date: Aug 2016

Publication Type(s): Journal Article Validation Studies

PubMedID: 27195802
Abstract: OBJECTIVE To validate self-reported hearing-related symptoms among personnel exposed to moderately high occupational noise levels at an obstetrics clinic. DESIGN Sensitivity, specificity, and predictive values were calculated for questionnaire items assessing hearing loss, tinnitus, sound sensitivity, poor hearing, difficulty perceiving speech, and sound-induced auditory fatigue. Hearing disorder was diagnosed by pure-tone audiometry, distortion product otoacoustic emissions, and HINT (Hearing In Noise Test). STUDY SAMPLE Fifty-five female obstetrics personnel aged 22-63 participated; including 26 subjects reporting hearing loss, poor hearing, tinnitus, or sound sensitivity, and 29 randomly selected subjects who did not report these symptoms. RESULTS The questionnaire item assessing sound-induced auditory fatigue had the best combination of sensitivity ≥85% (95% CIs 56 to 100%) and specificity ≥70% (95% CIs 55 to 84%) for hearing disorder diagnosed by audiometry or otoacoustic emission. Of those reporting sound-induced auditory fatigue 71% were predicted to have disorder diagnosed by otoacoustic emission. Participants reporting any hearing-related symptom had slightly worse measured hearing. CONCLUSIONS We suggest including sound-induced auditory fatigue in questionnaires for identification of hearing disorder among healthcare personnel, though larger studies are warranted for precise estimates of diagnostic performance. Also, more specific and accurate hearing tests are needed to diagnose mild hearing disorder.

Database: Medline

63. Comparison of Audiological RESULTS Between a Transcutaneous and a Percutaneous Bone Conduction Instrument in Conductive Hearing Loss.

Author(s): Gerdes, Timo; Salcher, Rolf Benedikt; Schwab, Burkard; Lenarz, Thomas; Maier, Hannes

Source: Otology & neurotology : official publication of the American Otological Society, American Neurotology Society [and] European Academy of Otology and Neurotology; Jul 2016; vol. 37 (no. 6); p. 685-691

Publication Date: Jul 2016

Publication Type(s): Journal Article

PubMedID: 27093021

Abstract: OBJECTIVES In conductive, mixed hearing losses and single-sided-deafness bone-anchored hearing aids are a well-established treatment. The transcutaneous transmission across the intact skin avoids the percutaneous abutment of a bone-anchored device with the usual risk of infections and requires less care. In this STUDY, the audiological RESULTS of the Bonebridge transcutaneous bone conduction implant (MED-EL) are compared to the generally used percutaneous device BP100 (Cochlear Ltd., Sydney, Australia). METHODSTen patients implanted with the transcutaneous hearing implant were compared to 10 matched patients implanted with a percutaneous device. Tests included pure-tone AC and BC thresholds and unaided and aided sound field thresholds. Speech intelligibility was determined in quiet using the Freiburg monosyllable test and in noise with the Oldenburg sentence test (OLSA) in sound field with speech from the front (S0). The subjective benefit was assessed with the Abbreviated Profile of Hearing Aid Benefit. RESULTS In comparison with the unaided condition there was a significant improvement in aided thresholds, word recognition scores (WRS), and speech reception thresholds (SRT) in noise, measured in sound field, for both devices. The comparison of the two devices revealed a minor but not significant difference in functional gain (Bonebridge: PTA = 27.5 dB [mean]; BAHA: PTA = 26.3 dB [mean]). No significant difference between the two devices was found when comparing the improvement in WRSs and SRTs (Bonebridge: improvement WRS = 80% [median], improvement SRT = 6.5 dB SNR [median]; BAHA: improvement WRS = 77.5% [median], BAHA: improvement SRT = 6.9 dB SNR [median]).
CONCLUSION Our data show that the transcutaneous bone conduction hearing implant is an audiologically equivalent alternative to percutaneous bone-anchored devices in conductive hearing loss with a minor sensorineural hearing loss component.

Database: Medline

64. Self-Fitting Hearing Aids: Status Quo and Future Predictions.

Author(s): Keidser, Gitte; Convery, Elizabeth

Source: Trends in hearing; Apr 2016; vol. 20

Publication Date: Apr 2016

Publication Type(s): Research Support, Non-u. s. Gov't Journal Article Review

PubMedID: 27072929

Abstract: A self-contained, self-fitting hearing aid (SFHA) is a device that enables the user to perform both threshold measurements leading to a prescribed hearing aid setting and fine-tuning, without the need for audiological support or access to other equipment. The SFHA has been proposed as a potential solution to address unmet hearing health care in developing countries and remote locations in the developed world and is considered a means to lower cost and increase uptake of hearing aids in developed countries. This article reviews the status of the SFHA and the evidence for its feasibility and challenges and predicts where it is heading. Devices that can be considered partly or fully self-fitting without audiological support were identified in the direct-to-consumer market. None of these devices are considered self-contained as they require access to other hardware such as a proprietary interface, computer, smartphone, or tablet for manipulation. While there is evidence that self-administered fitting processes can provide valid and reliable RESULTS, their success relies on user-friendly device DESIGNs and interfaces and easy-to-interpret instructions. Until these issues have been sufficiently addressed, optional assistance with the self-fitting process and on-going use of SFHAs is recommended. Affordability and a sustainable delivery system remain additional challenges for the SFHA in developing countries. Future predictions include a growth in self-fitting products, with most future SFHAs consisting of earpieces that connect wirelessly with a smartphone and providers offering assistance through a telehealth infrastructure, and the integration of SFHAs into the traditional hearing health-care model.

Database: Medline
Nursing

1. **Title:** Outcomes associated with postoperative delirium after cardiac surgery.

**Citation:** American journal of critical care : an official publication, American Association of Critical-Care Nurses, Mar 2015, vol. 24, no. 2, p. 156-163 (March 2015)

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**Abstract:** Delirium after surgery is a common condition that leads to poor outcomes. Few studies have examined the effect of postoperative delirium on outcomes after cardiac surgery. To assess the relationship between delirium after cardiac surgery and the following outcomes: length of stay after surgery, prevalence of falls, discharge to a nursing facility, discharge to home with home health services, and use of inpatient physical therapy. Electronic medical records of 656 cardiac surgery patients were reviewed retrospectively. Postoperative delirium occurred in 161 patients (24.5%). Patients with postoperative delirium had significantly longer stays ($P < .001$) and greater prevalence of falls ($P < .001$) than did patients without delirium. Patients with delirium also had a significantly greater likelihood for discharge to a nursing facility ($P < .001$) and need for home health services if discharged to home ($P < .001$) and a significantly higher need for inpatient physical therapy ($P < .001$). Compared with patients without postoperative delirium, patients who had this complication were more likely to have received zolpidem and benzodiazepines postoperatively and to have a history of arrhythmias, renal disease, and congestive heart failure. Patients who have delirium after cardiac surgery have poorer outcomes than do similar patients without this complication.

Development and implementation of an extensive care plan to address postoperative delirium is necessary for cardiac surgery patients who are at risk for or have delirium after the surgery. ©2015 American Association of Critical-Care Nurses.

**Source:** Medline

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