

implants and illustrative case studies. In addition, the 80 Hz ASSRs are compared to other auditory evoked potentials, bone conduction ASSRs and the use of ASSRs to assess auditory ability other than pure-tone audiometry, e.g., speech and temporal processing, are described.

The chapter on technical principles of ASSRs is a thorough review of the methodology of stimulus modulation and response analysis. These aspects of ASSRs are central to their application and the chapter includes some of the best explanations in the literature on these aspects, as they relate to ASSRs. The authors did a very good job of addressing a wide variety of reader backgrounds, as might be expected from the users of ASSRs, ranging from researchers who are well-versed in signal processing to practitioners who may not be as familiar with signal processing, but need to know the determinants of the responses in order to use them properly in the clinic. The chapter covers this wide range of backgrounds by supple-

menting the essentials in the body of the text with ample footnotes and references to the literature. The end product is admirable. Also noteworthy in their comprehensive coverage of basic aspects of ASSR are the chapters on generators, stimulus and subject factors, principles of clinical application and bone conduction ASSRs.

The chapters devoted to application of ASSRs are as thorough, but are naturally more dependent on the cumulative experience with ASSRs and will, therefore, probably undergo updates in future editions. These chapters cover behavioral threshold estimation, hearing screening and hearing device (hearing aids and cochlear implants) fitting and are as thorough on their topics as the technical chapters are on theirs. The authors do not shy from pointing out shortcomings and caveats in applying ASSRs to the specific uses discussed (e.g., artifacts in cochlear implant fitting) alongside highlighting the advantages. These practical chapters are followed by a chap-

ter devoted to specific case studies that comprehensively summarize individual cases, demonstrating both the advantages and limitations of ASSRs in audiological use. The chapter includes contributions from very experienced users of ASSRs and this is reflected in the critical and mature descriptions of the cases and the contribution of ASSRs to clinical use.

In summary, this comprehensive text is a must for anyone using or intending to use ASSRs in research or clinical applications. It is a most welcome and needed addition to textbooks covering physiological measures of auditory function.

Hillel Pratt PhD
Evoked Potentials Laboratory Technion
– Israel Institute of Technology

Email hillel@tenix.technion.ac.il.vcf



ABSTRACTS

Listening and speaking ability of Thai deaf children in pre-school aural rehabilitation program

Lertsukprasert K, Kasemkosin N,
Cheewareungroj W, Kasemsuwan L.

*Department of Otolaryngology
Faculty of Medicine
Ramathibodi Hospital
Mahidol University
Bangkok, Thailand*

Email: krisna44@hotmail.com

Background: An auditory-oral approach can help deaf children achieve success in oral communication. Many studies confirm that deaf children with access to sound through high-powered and appropriate hearing aids at the youngest age possible have the capability to acquire communication skills similar to their hearing peers.

Objective: Evaluate the listening and speaking progress made by 27 Thai hear-

ing-impaired children who attended a preschool aural rehabilitation program, which was established at Audiology and Speech clinic. After hearing aids fitting, deaf children were enrolled to the preschool aural rehabilitation program after receiving their parents consent.

Material and Method: Hearing impaired children were divided into groups of 4-6 children with approximately the same level of performance. The listening and speaking performance at the initial period were recorded. Each group participated in the 3-hour-program once a week, included auditory training, conversation (maternal reflexive method), and speech stimulation. The improvements and problems of each child were recorded at the end of session. Listening and speaking performance evaluation were recorded at six months intervals.

Results: There were 12 boys and 15 girls. The average hearing loss in the better ear was 104 dBHL, range from 83-117 dBHL, SD = 8.33. The mean age of enrollment was 2 years and 10 months. The majority gradually developed listening skills and speaking ability. There was no relationship between age of enroll-

ment and the listening and speaking ability ($p > 0.05$). However, listening skills had positive relationship with length of speech ($r = 0.685$), number of spoken vocabulary ($r = 0.665$), and speech character ($r = 0.598$); $p < 0.01$.

Conclusion: Auditory training is an important task to develop listening skills and improve length of speech, speaking vocabulary, and speech character. Other benefits from the aural rehabilitation program included monitoring the auditory progression after hearing aid fitting, parents meeting, and promotion a better quality of life by enabling hearing impaired children to participate in hearing society.

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