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NEUROAUDIOLOGY NEWSELTTER

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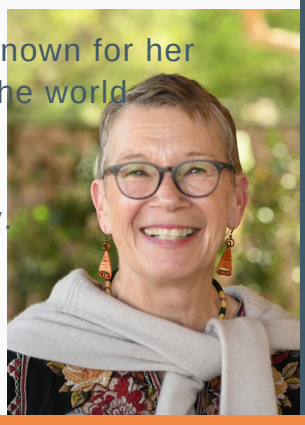
A Tribute to Professor Emerita Barbara Cone

We have lost a great leader in our field. Barbara Cone passed away On January 4th, 2025. She recently retired as Professor Emerita of Speech, Language and Hearing Sciences at the University of Arizona after a 20-year tenure. She was a wonderful colleague, friend, and mentor. Her academic and research passion was that of Pediatric Audiology where she made many outstanding contributions leading to over 80 publications and international recognition. She significantly advanced the field of audiology with her research and improved countless lives. Within her main interest area of pediatric audiology, she focused on electrophysiology where she was highly regarded as an innovative and rigorous investigator. She was an excellent mentor and teacher demanding much of herself and her students. Her door was always open for guidance, help, and discussion. She always had unique ideas for research and how to relate important concepts to students and colleagues. In guiding her many doctoral students, she imparted a respect and love for research and academic effort. As my advisor and thesis chair, she provided invaluable support and wisdom that helped me grow into a better, as she did for so many others.

Beyond her professional achievements, Barbara was known for her brilliant mind, generosity, and commitment to making the world better. She was active in her church, found joy in singing with the choir, and inspired those around her to approach challenges with compassion and creativity. Barbara Cone's legacy of knowledge, mentorship, and humanity will continue to inspire future generations. She will be deeply missed by all who had the privilege of knowing her.

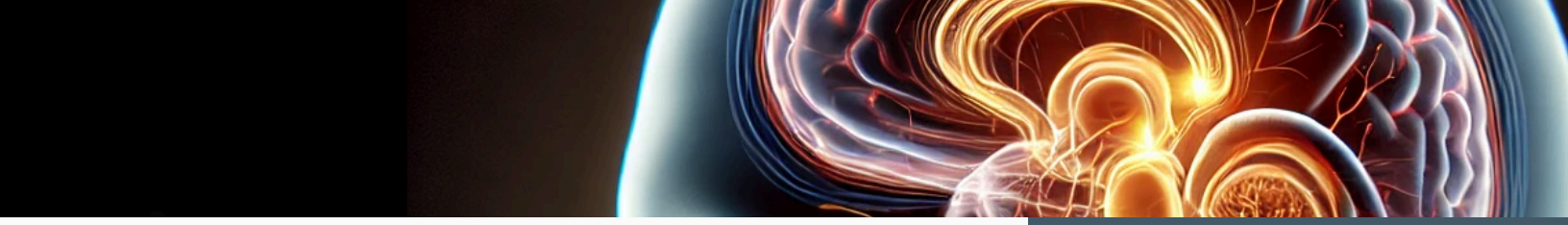


Audiology Trivia

1.**Recently, this highly studied agent was shown to cause hearing loss and balance disorders in mice.**
a) fireplace smoke, b) microplastics, c) desert dust, d) fluoride

2.**The fenestration operation for otosclerosis was pioneered by who?**
a) Rosen, b) Shambaugh, c) Lempert, d) Otis

3.**The commissure connecting the nuclei of the lateral lemniscus on each side of the auditory brainstem pathway is the commisure of what?**
a) Held, b) Rassmussen, c) Probst, d) Leeds



NeruoAudiology/CAPD Corner

TOPIC: HOW LONG SHOULD DICHOTIC INTERAURAL INTENSITY CONDUCTED?

In many forms of therapy, a lingering question seems to be – how long should therapy (in this case auditory training) continue. Obviously there are many factors that need to be considered in this decision. We cannot address these in this short communication rather we would like to focus on one of the few articles that does address this issue. A 2018 article by Delphi and Abdollahi looked at this issue of training duration for the DIID and an offshoot of the DIID the dichotic offset training (DOT). A fair amount of information has been published about the DIID and related dichotic training hence, we will not describe the procedures for the DIID or DOT. Some history and key readings are as follows.....We first described the DIID procedure in 1998 and termed it “dichotic speech perception 1998). This was followed by other publications of the DIID and related dichotic training procedures (for review see: Musiek et al. 2007; Weihing et al. 2014). The first publication on the DOT was in 2008 which used an adaptive dichotic procedure for altering offsets of dichotic stimuli for training (see Musiek et al. 2008).

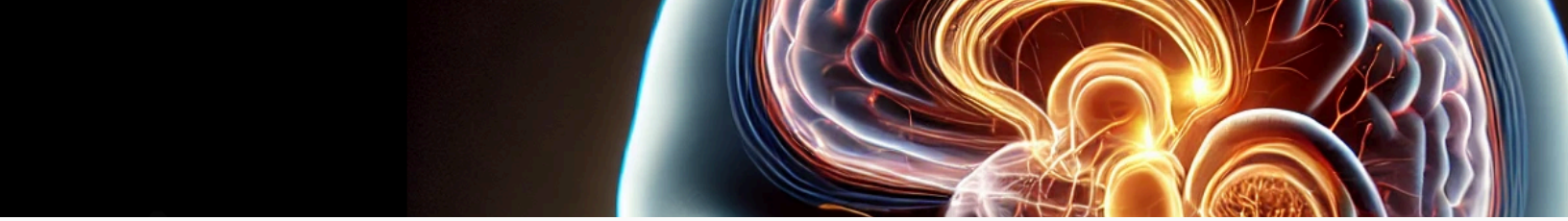
Delphi and Abdillahi, designed a study to determine the length of therapy to optimize results for the DIID and DOT training. Two groups of children were in enrolled in the study and matched along key parameters, one group received DOT and other DIID training. Both groups had left ear deficits or right ear advantages beyond established norms with differences in the 50 – 60 per cent range upon initiating training. There were four 30-minute sessions per week for each group. Both groups improved to a 10% difference between ears with the weaker ear showing the improvement (this was at or near normal dichotic listening performance). However, this asymptote of performance was achieved in 3 ½ weeks for the DIID group, compared to 4 ½ weeks for the DOT group.

Important in the Delphi and Abdillahi study was an indication of how long DIID/DOT therapy should be conducted given control of other parameters of training, i.e. number sessions and duration of each session etc. Obviously each case is different and clinical acumen must be applied. This clinical research, however, is at least a general guide for clinicians as to when to consider decisions on continuing or stopping therapy.

Upcoming Seminar

Mayo Clinic Audiological Conference Series
February 3, 2025

Frank Musiek will present on the NeuroAudiological Derivatives from the Remarkable Split-Brain Project



Upcoming Mini-Symposium

2ND ANNUAL "QUEST FOR THE BEST IN CAPD/NEUROAUDIOLOGY"

On April 26, 2025, this mini-symposium will present topics on Practical Management Approaches for CAPD

Program Directors: Frank Musiek and Jennifer Shinn
Sponsors: University of Kentucky and Hearing Health and Technology Matters Pathways
Faculties:
--Teri Bellis, PhD--University of South Dakota (Ret.)
--Vivian Illiadou, MD, PhD--Medical School of Aristotle University of Thessaloniki, Greece (Professor)
--Frank Musiek, PhD--University of Arizona (Ret.)
--Jennifer Shinn, PhD--University of Kentucky
--Gail Whitelaw, PhD--Ohio State University

This 2nd annual virtual program will provide expert practical yet scientific based management approaches for those with CAPD. Each of the outstanding speakers bring a wealth of practical experience as well research acumen to their presentations. Featured in addition to expert presentations will be an interactive panel which will address challenging management cases in CAPD. Circle the date on your calendar so you don't miss this timely and informative program.

ASHA American Speech-Language-Hearing Association

AJA

Viewpoint

Transducer Variability in Speech-in-Noise Testing: Considerations Related to Stimulus Bandwidth

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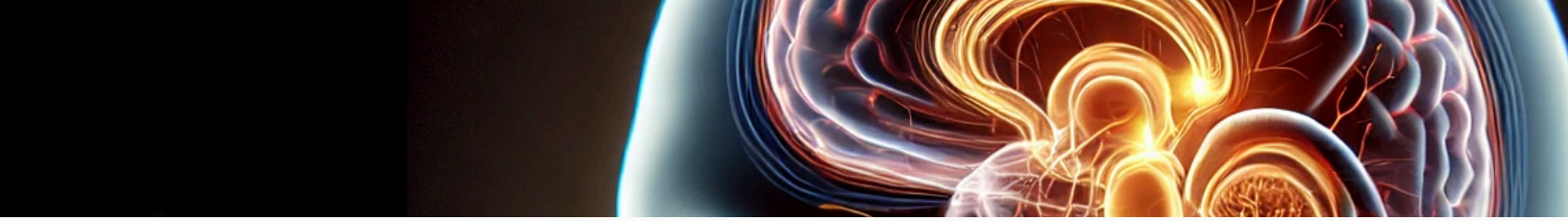
ABSTRACT

Purpose: Clinical audiologists typically assume that headphones and insert phones will produce comparable results when they are used to conduct speech-in-noise or other audiological tests; however, this may not always be the case. Here, we show that there are significant differences in the scores that previous studies have reported for headphone and insert-phone transducers on the Words-in-Noise (WIN) Test, and discuss the possibility that the variations in high-frequency output that are allowable under the speech source specifications of American National Standards Institute S3.6 might be contributing to transducer-dependent differences in performance for the WIN and other tests that are presented through the auxiliary input channels of clinical audiometers.
Method: A literature review was conducted to identify articles that reported WIN Test results for both listeners with normal hearing and with hearing impairment and specified the type of transducer (insert or TDH-50) used for the data collection.
Results: Among the 19 included studies, participants with normal hearing using inserts exhibited systematically worse WIN Test scores compared to those using TDH-50 headphones, while participants with hearing loss showed comparable average scores across transducer types.
Conclusions: The results highlight the importance of considering transducer type when interpreting WIN Test outcomes, particularly when comparing to normative scores obtained from individuals with normal hearing. Although further research is needed to elucidate the underlying mechanisms driving differences in test performance across transducer types, these findings underscore the need for standardized test administration protocols and careful documentation of transducer type when administering speech-in-noise tests for clinical or research applications.

New Article!

Brungart, D. S., & Davidson, A. J. (2024). Transducer Variability in Speech-in-Noise Testing: Considerations Related to Stimulus Bandwidth. American journal of audiology, 33(3), 1070-1076.



CAPD and ASD: Improving Auditory Skills with Deficit Specific Interventions

The prevalence of autism spectrum disorder (ASD) is about one in 36 children in the United States (Maenner et al., 2023) and approximately one in 100 children worldwide (Zeidan et al., 2022). Children and young adults diagnosed with autism spectrum disorder (ASD) often report and exhibit significant auditory processing difficulties, particularly in background noise. Specifically, despite normal pure-tone hearing sensitivity in participants.

A study completed at The Department of Audiology and Speech-Language Pathology, University of North Texas, Denton involving twenty-eight children and young adults with ASD. These children and young adults participated in a 12- week APT program that included one-on-one speech-in-noise training, computerized dichotic training, and use of remote-microphone technology at home and at school. Before and after training, each participant completed tests of speech recognition in noise, spatial processing, binaural integration, and general auditory processing skills. Conclusions: The APT program significantly improved spatial processing, binaural integration, phonological processing, auditory memory, auditory cohesion, and speech recognition in noise in individuals with ASD when the remote microphone system was used. The value of this information can have strong implications for how children and young adults with ASD can more fully participate and access auditory information in classrooms or environments with background noise.

Reference: Schafer, E. C., Gopal, K. V., Mathews, L., Miller, S., & Lam, B. P. (2024). Impact of an Auditory Processing Training Program on Individuals With Autism Spectrum Disorder. American Journal of Audiology, 33(4), 1221-1236.

Trivia Answers

1. (B) Microplastics were shown to cause hearing loss and balance disorders in mice.
2. (C) Lempert pioneered the operation for otosclerosis.
3. The commissure of (C) Probst connects the nuclei of the lateral lemniscus.

Learning Corner

The learning corner will offer citations of articles that may contribute to one's knowledge base for CAPD/NeuroAudiology.

- Musiek, F., Chermak, G., & Weihing,J. (2007). Auditorytraining. In F. Musiek (Eds.)& G. Chermak (Eds.) Handbook of (Central) Auditory Processing Disorder: Comprehensive Intervention, Volume II. Plural Publishing Inc., San Diego. pp. 77-106.
- Musiek, F., & Schochat, E. (1998). Auditory Training and Central Auditory Processing Disorders. Seminars in Hearing, 9(4), 357-366.
- Delphi, M., & Abdollahi, F. Z. (2018). Dichotic training in children with auditory processing disorder. International Journal of Pediatric Otorhinolaryngology, 110, 114-117.