

Neuroaudiology Newsletter

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Recently Accepted Publication

The editors of this newsletter are excited to announce a recently accepted publication into Ear and Hearing titled, “*Predicting Hearing Aid Satisfaction in Adults: A Systematic Review of Speech in Noise Tests and Other Behavioral Measures.*” This systematic review highlights the need for an effective clinical

protocol when implementing pre-fitting behavioral measures. Depending on the pre-fitting category measure used (speech recognition in quiet, speech recognition in noise, reception thresholds for speech in noise, speech-based subjective ratings, dichotic speech tests, and tests using non-speech material) and the specific test evaluated, differing amounts of hearing aid satisfaction was able to be explained. One important finding was that audibility was not a significant predictor of hearing aid satisfaction in any of the studies included in the review. Keep an eye out for this publication, it will be important for future hearing aid outcomes research and has great clinical implications.

Authors: *Davidson, A., Marrone, N., Wong, B., & Musiek, F.*

AUDIOLOGY TRIVIA

ANSWERS ON THE LAST PAGE

1) What type of temporal processing does the Gaps in Noise (GIN) test assess?

a) Resolution, b) Integration, c) Sequencing, d) Masking

2) The neurotransmitter in the cochlea is what?

a) Aspartate, b) Glutamate, c) Dopamine, d) Acetylcholine

3) Early clinical studies of reflex latency were done by this Chicago otologist.

a) George Shambaugh, b) Jack Clemis, c) Blair Simmons, d) Aaron Norton

Review of Articles of Interest

Title: Auditory Phenotypic Variability in Friedreich's Ataxia Patients

Authors: Koochi, N., Thomas-Black, G., Giunti, P., & Bamiou D.E.

Journal: The Cerebellum (2021)

In this impressive paper, patients with certain phenotypes associated with Friedreich's ataxia are shown to have significant auditory deficits. These deficits were demonstrated by sub-par performance on a number of tests of the central auditory system.

Interestingly, both the auditory brainstem responses (ABR) and gaps in noise (GIN) test results revealed abnormal findings on approximately $\frac{3}{4}$ of the patients tested. The Listening in Spatialized Noise (LISN) test and speech babble tests showed even [slightly] higher sensitivity to this clinical population.

From an audiologic perspective, this study highlights the value of central auditory test procedures in evaluating patients with Friedreich's ataxia (especially of the phenotype defined in this study). This research, as well as other previous publications, support the importance of audiological evaluations of patients with Friedreich's ataxia in order to better manage these patients' auditory difficulties in an appropriate and timely manner.

Title: ABR Heralds the Initial Diagnosis of Neurofibromatosis Type II

Authors: Ivey, R., Cheek, D., Musiek, F.

Journal: The Hearing Journal (2021)

This is a highly clinically relevant article showcasing how an astute practicing audiologist identified a patient with a serious medical problem. This was done primarily by properly utilizing the ABR to measure the integrity of the auditory nerve and brainstem auditory pathway. The patient's complaint of hearing loss, combined with the audiogram and ABR prompted a very timely medical referral and eventual diagnosis of neurofibromatosis Type II.

The audiogram from this young, adult patient showed an asymmetric, sensorineural hearing loss. The judiciously selected ABR, on the involved side, showed a highly replicable wave 1, with the remaining waves absent. These findings were, indeed, highly persuasive and were front and center in urging an in-depth medical evaluation that led to the diagnosis.

This report reminds us all of the need to be alert to neuroauditory disorders and the important role an audiologist can play in the diagnosis and proper and timely referral of these kinds of patients. It also reminds us of the continued value of the ABR, even in a private practice setting.

Well-Deserved Recognition

It is with great pleasure to share the news and congratulate Dr. Pam Souza, Department Chair and professor at Northwestern University, on receiving the title, “Fellow of the Acoustical Society of America.” It is with her meaningful work in advancing the understanding of the factors that affect an individual’s response to hearing aid signal processing that has brought her this honor. Congratulations Dr. Souza, we look forward to your continued contributions to the field!



Coming Soon to Audiology Online

Gus Mueller’s 20 Questions will interview Frank Musiek about his research career in study of the relationships between the ear and the brain. Watch for this interview in April 2021!

Interesting Reads on Neuroaudiology and CAPD

- Merten N, Fischer ME, Tweed T, Breteler MM, Cruickshanks, KJ. (2020). Associations of hearing sensitivity, higher-order auditory processing, and cognition over time in middle-aged adults. *The Journals of Gerontology: Series A*, 75(3), 545-551.
- Anderson S, Karawani H. (2020). Objective evidence of temporal processing deficits in older adults. *Hearing Research*.

AUDIOLOGY TRIVIA ANSWERS

- 1) The type of temporal processing assessed in the GIN test is (A) resolution.
- 2) The neurotransmitter in the cochlea is (B) Glutamate.
- 3) The Chicago otologist is (B) Jack Clemis.