

Hearing loss prediction and prevention for all – including musicians and war fighters.

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TOPICS:

- A. Some physiology considerations:
 - 1. Otoacoustic Emissions and susceptibility to hearing loss
 - a. CD of Bach by ear: An educational recording for a party turned dull
 - 2. Count the Dots Articulation Index: An important counseling tool
 - 3. Prediction of SNR loss: $CueTransferRatio * AI = Perceived AI$
 - a. *QuickSIN* can quickly measure SNR loss and predict CTR
 - b. P-AI allows estimation of intelligibility in noise under real-life conditions
 - 4. Simple checks for dead zones where amplification can cause feedback without improving speech intelligibility
- B. Examples of real-people hearing loss
 - 1. Rock and Classical musicians
 - 2. Yehudi Menuhin's Diplacusis
 - 3. Place pitch and Diplacusis
 - 4. DVD "Hear for a Lifetime" sent to 42,000 HS music educators
 - 5. What to do for the 20% of patients with ≥ 12 dB SNR loss
- C. Hearing protection
 - 1. What is required for musicians
 - 2. What is required for war fighters and hunters
 - 3. What is required for all of us
- D. Another critical clinical tool: Knowledge of brain rewiring
 - 1. First fit sometimes leaves quiet speech cues inaudible
 - 2. With proper counseling, the "hearing aid is noisy" problem
Will be solved as the patient relearn how to localize
And recognize quiet high frequency sounds

Handouts: DVD, CD, 20 years later Count-the-Dots SII

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LIFETIME ACHIEVEMENT AWARD



Mead C. Killion, PhD, ScD

Mead C. Killion, PhD, ScD (hon) has played a key role in many of the breakthroughs in hearing aid technology for almost 50 years. Armed with two degrees in mathematics, he began his career at Knowles Electronics, mentored by Elmer Carlson. He left on excellent terms after 21 years to try his own wings, founding Etymotic Research

in 1983. Mead's goals were to design products to measure, protect and enhance hearing; specifically; to develop insert earphones to replace WWII TDH-39 earphones; to develop a handheld screener for infant hearing testing; and to bring to reality the 16 kHz bandwidth, high-fidelity, WDRC hearing aid described in his dissertation.

Over the next twenty-seven years, Mead and his dedicated team (most of whom are still with him) introduced ER-3A insert earphones, Musicians Earplugs and lower-cost ER-20 HiFi earplugs, the K-AMP, Class D, EROSCAN (OAE), improved directional microphones, and near-perfect electronic response smoothing. Mead was President of the Chicago Acoustical and Audio Group in 1968, and President of the Midwest Acoustics Conference in 1970. He has stated that one of this most rewarding leadership experiences was serving as President of the American Auditory Society from 1996-1997. He is a Fellow of the Acoustical Society of America and the Audio Engineering Society. Mead has received numerous awards for his contributions to the field of hearing, including the Sam Lybarger Award. He has held appointments at three universities and directed doctoral research at two. He is currently Adjunct Professor at Northwestern University, where for over 25 years, he has taught the Hearing Aid Electroacoustics course each spring. Mead is a choir director, jazz pianist and violinist, and he has run 31 marathons. He is currently working on an electronic blast protector for deployed warriors, who are returning in staggering numbers with tinnitus and hearing loss.