

POSTER ABSTRACTS

1. Characterization of Agricultural Noise Exposure at an Indian Reservation in New Mexico

Chandran Achutan and Randy Tubbs, National Institute for Occupational Safety and Health, Cincinnati, Ohio

This poster presents noise exposures encountered during the processing and packaging of potatoes, and during the manufacture of alfalfa pellets, at an Indian reservation in New Mexico. Four of the twenty employees that were monitored exceeded their total dose of 100%, per the NIOSH criteria. TWA noise levels experienced during these agricultural operations ranged from 80.6-91.6 dBA. This poster discusses the controls currently in place and additional recommendations on further controlling the noise exposures.

2. Now You Hear – Now You Don't (A Clinical Case Study)

MAJ Amy A. Blank, Spring Lake, North Carolina, and COL Nancy L. Vause, Ph.D., Human Research and Engineering Directorate, Aberdeen Proving Ground, Maryland

During routine training, a new soldier fired a common infantry weapon without wearing hearing protection devices (HPDs) suffering significant hearing loss. A military audiologist completed serial clinical assessments documenting temporary and permanent threshold shifts, reduced speech intelligibility in quiet and in noise, and abnormal otoacoustic emissions. This paper presents an analysis of a one-time exposure without HPDs in regard to type of exposure, spectral waveform, hearing protection, audiometric results, and exposure predictions with and without HPDs.

3. Effect of Amplified Earmuffs on Speech Intelligibility in Industrial Noise

Thomas G. Dolan and Dennis O'Loughlin, Portland State University

Data will be presented from a study that explored whether amplified earmuffs can improve speech intelligibility among workers with hearing loss. Three sets of amplified earmuffs were compared: the Elvex COM 55, the Bilsom 707 Impact II and the Peltor Tactical 7-S. The performance of 12 hearing-impaired subjects on the Hearing in Noise Test (HINT) was measured when they listened with each of these devices in a background of recorded industrial noise presented at 85 dBA. Performance was also assessed with passive earmuffs (EAR Ultra 9000) and with no muffs. The results of the study will be presented and their implications discussed.

4. Preferred Listening Levels (PLLs) for Music in Automobiles

Gregory A. Flamme, Catherine C. Nelson, Aline Sundeen

We will report noise levels, spectra, and level distributions in a sample of pre-owned automobiles, across position, road, and blower fan settings. A typical noise was then simulated, using a 16-loudspeaker array controlled via Matlab using TDT hardware. Young adult listeners adjusted the volume of their "favorite" song to their PLL. The relationship between the music's acoustic characteristics at PLL and the noise will be evaluated across four noise attenuation and filter conditions.

5. Application of Advanced Multimedia Computer Technology in Self-administered Hearing Screening & Feedback: Feasibility and Effectiveness

Oi Saeng Hong, Ph.D., School of Nursing, University of Michigan, Ann Arbor, Michigan, and Peter Csaszar, Ph.D., Electrical & Computer Engineering, Lawrence Technological University, Southfield, Michigan

This study incorporated multimedia computer technology to self-administered hearing screening and personalized feedback to prevent noise-induced hearing loss among construction workers. Interactive multimedia program was developed by a multidisciplinary team. The effectiveness of the program was evaluated by participants' feedbacks over 700 operating engineers. About 40% of participants never used the computer. Yet, the majority of them (over 96%) liked getting hearing test by the computer and reported the computerized hearing test worked smoothly.

6. A Human Factors Investigation of Pilot Performance Using Mixed-Modality Simulated Data Link

Jeff A. Lancaster, M.S. (presenter), Gary S. Robinson, Ph.D., and John G. Casali, Ph.D.

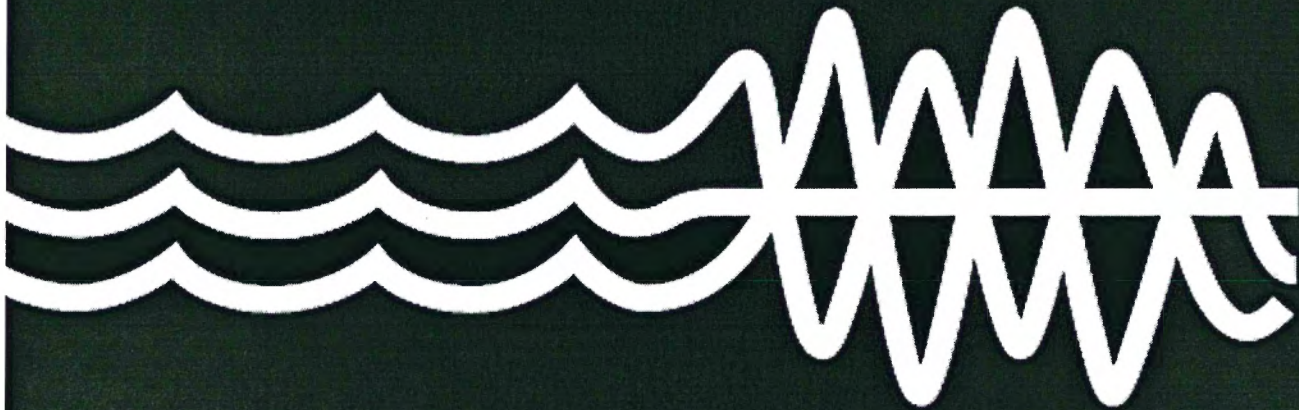
Research into synthesized and/or digitized auditory systems has not been conducted utilizing the latest speech synthesis technologies, nor has it been conducted in concert with modern communications technologies such as active noise-reduction (ANR) headsets. Sixteen visual flight rules (VFR)-rated pilots participated in an experiment to investigate performance using a mixed-modality simulated data link in a mixed-factor design. Results were gathered and interpreted to provide recommendations for the integration of voice technologies in the GA cockpit.

7. The Prevalence and Characteristics of Tinnitus among Recreational Firearm Users

Jeremy Scott McCallister, Michael Nerbonne and Michael Stewart

This study examined the relationship between tinnitus and recreational firearm use in order to obtain a more complete picture of the tinnitus experienced by 229 recreational shooters. Survey data revealed that 41% of the shooters reported experiencing tinnitus, but they generally did not perceive tinnitus as a significant problem. The primary factors correlated with tinnitus were reported hearing loss and exposure to other sources of noise in addition to firearms. Items from the Tinnitus Severity Index correlated with overall tinnitus severity. Factors not correlated with tinnitus included use of ear protection and type of firearm used. Inconsistent use of ear protection and lack of an understanding of the relationship between firearm noise exposure and tinnitus were also revealed.

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29th Annual NHCA Hearing Conservation Conference

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