

Estimated Noise-Induced Permanent Threshold Shift from Audiometric Shape

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To explore the relationship between audiometric shape and speech-frequency noise-induced permanent threshold shift (N5123), 270 audiograms were created (using ISO-1999), representing a variety of ages, exposure levels, and percentiles. Bulge depth (BD) was defined as the difference between pure tone average (PTA) for 2, 3, and 4 kHz and PTA for 1 and 6 kHz. N5123 was well-predicted by quadratic functions of BD. Estimates of N5123 based on BD can be helpful in medical-legal diagnosis and allocation of hearing loss.

Best Practices, International Standards and Legislations Regarding Chemical Exposure in the Workplace and the Risk of Hearing Loss

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The adverse auditory effects of chemical toxicants have been investigated more systematically during the past two decades, both in animal and human field and clinical studies. Although noise is considered the predominant source of work-related hearing loss, recent evidence has demonstrated that chemical toxicants can also cause hearing loss and enhance sensitivity to noise. The new evidence has prompted the proposal of new guidelines and standards on hearing loss prevention. In the U.S., the National Institute for Occupational Safety and Health and the American College of Occupational and Environmental Medicine have discussed specific research needs regarding the ototoxicity of chemicals used at work. The American Conference of Governmental Industrial Hygienists and the U.S. Army have proposed preliminary practical steps

that employers and occupational health professionals can take to improve hearing loss prevention. Australia and New Zealand have developed standard AS/NZS 1269:2005, requiring hearing tests for workers exposed to ototoxic agents. In the legislative arena, the European Parliament published a new noise directive (2003/10/EC), to be adopted by all participants' countries by 2006. This Directive requires employers to give attention to any effects on workers' health and safety resulting from interactions between noise and work-related ototoxic substances, when performing risk assessment of workplaces. Legislation regarding compensation has also changed in Australia (Workcover Guides for the Evaluation of Hearing Impaired, June 2002) and Brazil (Decree 3048, May 6, 1999). This presentation will examine the recent guidelines and legislative developments and discuss alternative strategies for preventing auditory effects of exposure to ototoxic chemicals.

Comfort and Personal NRR in a Longitudinal Study of Highly Experienced Earplug Users

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The Hearing Loss Prevention Team of NIOSH was invited to be the technical advisor in a study of an advanced hearing protector at a facility of a major auto manufacturer.

The study consisted of four visits over the course of one year. Subjects were assigned to one of three groups: Group A received the new hearing protector, Group B was counseled in the proper wear of their current hearing protector, and Group C was not counseled. At the first visit all

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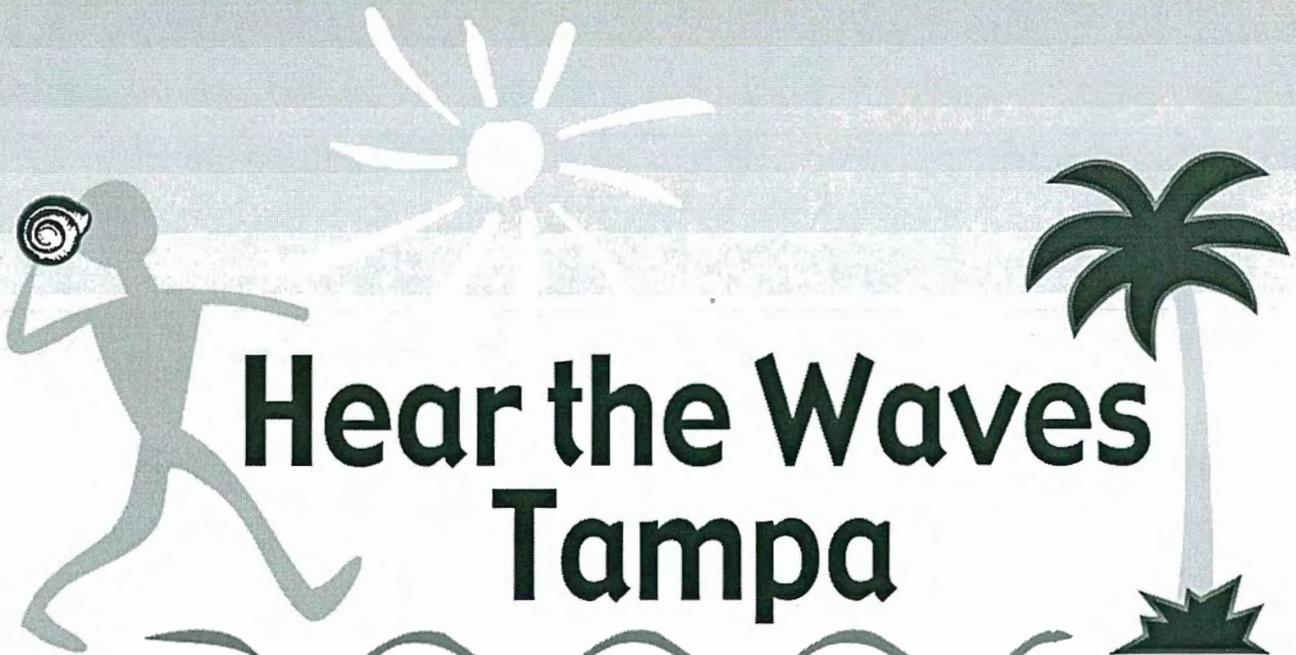


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