
NOISE AND HEARING CONSERVATION

- American Industrial Hygiene Association (AIHA)
 - Noise Information
<http://www.aiha.org/SplashPages/html/topic-noise.htm>

Provides links (mainly) to those AIHA resources and activities dealing with noise and hearing conservation.

- Canadian Hearing Society
 - Main Page
<http://www.chs.ca/>
 - *Hear to Stay: Make Noise About Noise*
<http://www.chs.ca/info/noise/index.html>

Hear to Stay... is a series of four booklets that discuss prevention of noise-induced hearing loss (the second in the series specifically focuses on workplace and industrial noise).

- CCOHS
 - Noise: Auditory Effects
http://www.ccohs.ca/oshanswers/phys_agents/noise_auditory.html
 - Noise: Basic Information
http://www.ccohs.ca/oshanswers/phys_agents/noise_basic.html
 - Noise: Measurement of Workplace Noise
http://www.ccohs.ca/oshanswers/phys_agents/noise_measurement.html
 - Noise: Non-Auditory Effects
http://www.ccohs.ca/oshanswers/phys_agents/non_auditory.html
 - Noise : Occupational Exposure Limits for Extended Shifts
http://www.ccohs.ca/oshanswers/phys_agents/exposure_ext.html
 - Noise: Occupational Exposure Limits for Canada
http://www.ccohs.ca/oshanswers/phys_agents/exposure_can.html

These pages address the issues pertaining to noise exposure and its auditory effects in a simple Q&A format.

- Health and Safety Executive (UK)
 - Noise
<http://www.hse.gov.uk/noise/index.htm>

Explains what HSE is doing to tackle noise at work, as well as providing access to a range of information about noise.

- IAPA
 - Hearing Conservation Program

<http://www.iapa.ca/pdf/1hearing.pdf>

This guideline is intended to help a company develop a hearing conservation program.

- MSHA

- Technical Reports: Noise

- <http://www.msha.gov/S&HINFO/TECHRPT/NOISE.HTM>

- Topics include occupational exposure in coal mines, noise-induced hearing loss among miners, and the effect of selected theoretical distributions of sound levels pertaining to calculated noise dose.

- Health Standards for Occupational Noise Exposure

- <http://www.msha.gov/1999noise/noise.htm>

- This is “single source page for all documents and resources” related to MSHA’s *Health Standards for Occupational Noise Exposure*.

- National Hearing Conservation Association (US)

- Main Page: <http://www.hearingconservation.org/>

- The mission of the NHCA is to “eliminate noise-induced hearing loss at work, home, and play.”

- NIOSH

- Hearing Loss Prevention in Mining

- <http://www.cdc.gov/niosh/mining/topics/hearing/default.htm>

- Hearing Loss Prevention (General)

- <http://www.cdc.gov/niosh/topics/noise/>

- The NIOSH site provides a range of items (e.g., prevention tips, reports, videos) for both general and mining industries.

- OSHA

- Noise and Hearing Conservation

- <http://www.osha.gov/SLTC/noisehearingconservation/index.html>

- This page lists a variety of documents on the topic of noise and hearing conservation; these are organized into categories such as recognition, evaluation, control, compliance, and training.

- SIMRAC (Safety in Mines Research Advisory Committee – South Africa)

- Develop means to enhance the effectiveness of existing Hearing Conservation Programmes (GEN 011)

- <http://www.simrac.co.za/report/Reports/thrust7/gen011/gen011.htm>

“This project was aimed at providing means to enhance the effectiveness of mines hearing conservation programmes and thereby limit the detrimental effects of noise.”

- An examination of methods whereby noise levels in current and new equipment may be reduced (GEN 420)
<http://www.simrac.co.za/report/Reports/thrust7/gen420/gen420.htm>
- Technology transfer programme pertaining to noise and vibration (Part 2 is currently in progress)
(HEALTH 806)
<http://www.simrac.co.za/report/Reports/thrust7/health806/health806.htm>
- Evaluation of new methods for NIHL screening and diagnosis
(SIM020701)
<http://www.simrac.co.za/report/Reports/thrust7/SIM020701/SIM020701.html>

This report “evaluate[s] the viability of auditory steady state response testing for pseudohypacusic workers in the South African mining industry.”

- Oto-acoustic emission screening for early hearing impairment (HEALTH 802)
<http://www.simrac.co.za/report/Reports/Health/health802/health802.html>

This document currently is in development.

- World Health Organization, Regional Office for Europe

- Noise and Health
<http://www.euro.who.int/noise/>

“The programme on noise and health reviews the main health effects on noise from a dose-effect perspective and identifies the needs of specific vulnerable groups.”

- WSIB

- Pilot Implementation of the Program of Care for Noise Induced Hearing Loss
<http://www.wsib.on.ca/wsib/wsibsite.nsf/Public/healthpocnihl>

Intended for health professionals, the Program of Care for NIHL helps to “ensure that injured workers of Ontario diagnosed with Noise Induced Hearing Loss get the most appropriate care and treatment based on the latest scientific evidence.”

- Prevention Reference: Noise Control and Hearing Conservation Kit
<http://www.wsib.on.ca/wsib/wsibsite.nsf/Public/ReferencePrevention>

References included on this page several resources produced by the WSIB’s Prevention Division. The Noise Control and Hearing Conservation Kit is comprised of three components:

- Hearing for Life Brochure
- Hearing for Life: A Guide to Noise Control and Hearing Conservation
- Noise Control and Hearing Conservation Program Audit Tool

Journals

Bolia, R.S., and R.L. McKinley. 2000. "The effects of hearing protectors on auditory localization: evidence from audio-visual target acquisition." *International Journal of Occupational Safety and Ergonomics* 6 (3): 309-319.

Response times in an audio-visual target acquisition task were collected from three participants while wearing either circumaural earmuffs, foam earplugs, or no hearing protection at all.

Everest-Hill, D. 2002. "Sound check." *Accident Prevention* 49(1): 13-17.

Discusses that changes in technology have made it easier and more economical for workplaces to conduct their own noise exposure measurements, and that if done incorrectly, self-testing can put workers at risk. It also advises organizations to seek expert advice when setting up a hearing protection program.

Franks, J.R., et al. 2003. "Alternative field methods for measuring hearing protector performance." *AIHA Journal* 64(4): 501-509.

"In comparison with the mandatory noise reduction rating (NRR) testing of every hearing protector sold in the United States, real-world tests of hearing protector attenuation are scarce. This study evaluated data from three potential field-test methods as compared with the subject-fit data from Method B of ANSI S12.6-1997 for the E.A.R(R) Express trade mark Pod Plug trademark."

Franz, R.M. 2002. "Addressing the noise hazard: fundamental requirements and critical focus areas." *Journal of the Mine Ventilation Society of South Africa* 55 (3): 106-110.

This paper sets out that noise-induced hearing loss is preventable, despite past and present experience in the mining industry.

Hodgson, M. 2001. "At the source." *Occupational Health and Safety Canada* 17 (2): 24, 26, 28.

Hodgson examines the role of engineered noise control in reducing risks of noise-induced hearing loss in the workplace. He notes that noise control engineering consists of applying engineering solutions to control occupational noise and vibration and the resulting noise exposure, and outlines those methods of active and passive noise control.

Hunt, S. 2001. "Pumping up the volume." *Accident Prevention* 48 (1): 21-25

Examines the problem of "hearing overprotection and its effects on speech and warning signal recognition, as well as how hearing protection programs can be adapted to avoid these difficulties."

McBride, D.I., and S. Williams. 2001. "Audiometric notch as a sign of noise-induced hearing loss." *Occupational and Environmental Medicine* 58 (1): 46-51.

Describes a study to investigate the relation between different types of exposure to noise and a classic sign of noise-induced hearing loss (NIHL), the audiometric notch.

Nighswonger, Todd. 2002. "Do your workers wear too much hearing protection?" *Occupational Hazards* 64 (10): 65-

Also available at: <http://www.occupationalhazards.com/articles/index.php?id=5042>

Nighswonger looks at the use of hearing protection devices in an industrial production facility; the susceptibility of a hearing protector to attenuate high frequencies; characteristics of a proper HPD; and recommendations in reducing unintelligible speech in an HPD.

Prince, Mary M., et al. 2004. "The contribution of focus groups in the evaluation of hearing conservation program (HCP) effectiveness." *Journal of Safety Research* 35 (2004): 91-106.

This paper "illustrates how focus groups, comprised of line workers and supervisors, were used to clarify and augment information gathered through more traditional program assessments to provide a more enriched picture of hearing conservation practices."

Prince, Mary M. 2002. "Distribution of risk factors for hearing loss implications for evaluating risk of occupational noise-induced hearing loss." *The Journal of the Acoustical Society of America* 112 (2): 557-567.

This paper presents an analysis of hearing threshold levels among 2066 white male workers employed in various U.S. industries studied in the 1968-72 NIOSH Occupational Noise & Hearing Survey (ONHS). The distribution of hearing threshold levels (HTL) is examined in relation to various risk factors (age, prior occupational noise, medical conditions) for hearing loss among a population of noise exposed and control (low noise exposed) industrial workers.

Sterrett, Mike. 2002. "Breaking the hearing protection barrier." *Occupational Health & Safety* 71 (3): 28-33

Discusses the need for preserving the hearing health of employees in the United States and the prevention of the psychological and emotional consequences of hearing loss.

Sterrett, M.L. 2002. "Keeping an ear to the ground: tech solutions to hearing protection compliance." *Professional Safety* 47 (8): 46-48.

Explains that, according to the U.S. National Institute for Occupational Safety and Health (NIOSH), the number of U.S. workers exposed to toxic noise now tops 30 million; consequently, this makes noise-induced hearing loss (NIHL) the leading occupational illness in North America.

Other

CCOHS. 2000. *Noise Control in Industry: A Basic Guide*. Hamilton: Canadian Centre for Occupational Health and Safety, 131 p.

<http://www.ccohs.ca/products/publications/noisecontrol.html>

Noise Control in Industry is a guide to occupational noise problems and exposure control. It discusses how to measure noise exposure levels, assess risk of hearing loss, and how to develop a hearing conservation program.