

Quick Facts: Environmental Noise Exposure and Hearing Loss

- Noise causes hearing loss.¹⁻³
- There is an unrecognized epidemic of hearing loss in the United States. The percentage of Americans with hearing loss has nearly tripled from 7% of the population in 1971 (age 3 and over) to 9% in 1991 (age 3 and over) to 20% in 2008 (age 12 and over).^{4,5} Today, more than 48 million Americans are estimated to suffer from significant hearing loss.⁴
- Older adults are especially affected by hearing loss: 45% of those aged 60-69 years; 68% of those aged 70-79 years, and almost 90% over age 80.⁴
- The epidemic of hearing loss is spreading to younger age groups. In 2006, approximately 20% Americans aged 12-19 years had measureable hearing loss, compared with 15% in 1994.⁶
- In 2000, hearing loss and other communications disorders were estimated to cost the United States \$122-\$186 billion annually (2%-3% of the U.S. Gross Domestic Product; up to \$600 billion in 2015 dollars).⁷
- Noise-induced hearing loss is the most common cause of hearing loss in adults.⁸
- Recent research shows that there is no such thing as temporary hearing loss or tinnitus.⁹ Any fullness or ringing in the ears after noise exposure indicates that permanent auditory damage has occurred.
- Environmental noise levels in American society exceed safe standards. Landscape maintenance machines (mowers, leaf blowers) operate at levels up to 110 decibels around homes, schools, parks, hospitals, and shopping areas.¹⁰ Sound levels of 80-90 decibels and higher have been measured in restaurants¹¹⁻¹⁴, up to 105 decibels in fitness classes^{11,15,16}, 80-90 decibels in retail stores^{11,17}, 80-100 decibels in movies (up to 130 decibels in some action movies)^{18,19}, and average 80-90 decibels at sports events.²⁰
- The public is exposed to noise 24 hours a day. The recommended environmental noise exposure level to prevent hearing loss in the general public (exposed to noise 24 hours each day) is an average of 70 decibels over 24 hours.³ The standard for occupational noise exposure to prevent hearing loss in workers is 85 A-weighted decibels (dB(A))* with time exposure limits of 8 hours a day, 240 days a year, for 40 years.**²¹ This occupational noise standard has been widely but erroneously applied as safe for the public²²⁻²⁴ without a specified time exposure limit. The difference between the environmental and occupational levels has been confirmed by the National Institutes of Occupational Safety and Health and the Centers for Disease Control and Prevention.^{25,26}
- Noise-induced hearing loss is 100% preventable.²⁵ Individuals must avoid noise exposure. Governments should develop standards and enforce rules to make indoor and outdoor places quieter.

*A decibel (dB) is a unit of sound measured using a logarithmic scale for which each 10 point increase in dB level represents a 10-fold increase in noise level. An unweighted decibel makes no adjustment for sound frequency; an A-weighted decibel (dB[A]) which adjusts the frequencies for those found in human speech minimizes the measurement of low frequency sound.

**The National Institute for Occupational Safety and Health and the Occupational Safety and Health Administration have recommendations, regulations, and rules to protect worker hearing. NIOSH recommends an 85 db(A) exposure level²². Worker protections include provision of personal protective equipment, hearing conservation programs, insurance, and workers compensation. In contrast to workers, the public has no protection from these same levels of harmful noise generated in their communities.

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