

# The Effects of Noise and the Conservation of Hearing

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## Purpose

To provide an overview of the consequences of excessive noise exposure.

## Chapter Topics

- The Need to Prevent Hearing Loss
- The Effects of Noise
- Hearing Loss
- Tinnitus and Hyperacusis
- Communication Interference
- Effects on Job Performance
- Other Non-Auditory Effects

## The Need to Prevent Hearing Loss

Noise is one of the most pervasive of all occupational hazards, and dealing with its effects on hearing go back to the beginnings of the Industrial Revolution. Initially labeled “boilermaker’s disease” for its prevalence in workers fabricating steam boilers, **noise-induced hearing loss** (NIHL) has often been considered an inevitable consequence of a noisy job. In 2007, hearing loss accounted for 14% of occupational illness, with more than 80% of cases occurring in the manufacturing sector.<sup>1</sup> According to the Bureau of Labor Statistics, industries like metal manufacturing had a hearing loss rate of 33.8 cases per 10,000 full-time workers.<sup>2</sup> However, as hearing conservation professionals, we also know that this condition is totally preventable. This is why the work of the hearing conservation team, especially the **occupational hearing conservationist** (OHC), is so important. If hearing is protected from the first day of exposure, hearing impairment can be prevented.

## The Effects of Noise

Although hearing loss is the most well-known—and probably has the most recognizable impact on individual workers—it is not the only result of excessive noise. The good news is that preventing hearing loss from excessive noise also prevents most other adverse effects, which is another reason for initiating and maintaining an effective **hearing conservation program** (HCP).

## Hearing Loss

Although NIHL is so common, in its early stages, it is often underrecognized because, in most cases, there are no visible effects like bleeding or pain. Often, there is only a gradual, progressive loss. The effects may initially be noticed only by family and friends but, unless halted, may lead to problems maintaining safety on the job and even a loss of sensitivity to environmental sounds. Unfortunately, good hearing is usually taken for granted until it is significantly impaired.

## Hearing Handicap

Hearing loss may be so gradual that individuals often do not recognize it until the impairment is handicapping. Early complaints usually involve a perception that other people are not speaking clearly. Communication is especially challenging if there is competing noise or if the speaker is not in the same room. The person with hearing loss often becomes annoyed with others’ apparent lack of consideration. Family and friends are told, “If you would just enunciate, I would hear you fine!” Also, because of distortions in **inner ear** processing due to noise damage, sounds or speech levels may be perceived as excessively loud—although not clear. The clinical term for this is **hyperacusis**, and it will be discussed later. It is not unusual to hear someone with a significant hearing loss, obviously straining to hear and understand what someone is saying, to suddenly respond, “Don’t shout at me. I can hear you, but I just can’t understand what you’re saying!”

As the hearing loss worsens, the individual tends to withdraw from social situations. Events such as church services, parties and movies are no longer as enjoyable, and the individual may choose to stay home rather than struggle with interactions. The loud volume of the TV often becomes a source of contention; family members may find it difficult to stay in the same room.

One of the most serious and yet least talked about consequences of hearing impairment is the reduction in the degree of intimacy among family members. When hearing worsens, it becomes more difficult for spouses and other family members to be understood. Communication becomes less personal and the relationship less satisfying, and loneliness and isolation creep in.<sup>3</sup>