

Study shows effectiveness of earplugs in preventing temporary hearing loss after loud music

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In a study published online by *JAMA Otolaryngology-Head & Neck Surgery*, Wilko Grolman, M.D., Ph.D., of the University Medical Center Utrecht, the Netherlands, and colleagues assessed the effectiveness of earplugs in preventing temporary hearing loss immediately following music exposure.

The prevalence of acquired [hearing loss](#) has risen in past years. The U.S. National Health and Nutrition Examination Survey found that the prevalence of adolescents with hearing loss has increased by 31 percent in the 2 decades since 1988. An explanation for this trend is the increase in [exposure](#) to recreational noise, such as visiting [music](#) venues (concerts, festivals, and nightclubs). Attendees of these recreational activities can be exposed to loud music with sound pressure levels of approximately 100 to 110 dBA for several hours. This exposure is known to cause hearing loss. However, in most cases, noise exposure causes temporary hearing loss.

For this study, the researchers randomly assigned 51 individuals attending an outdoor music festival (for 4.5 hours) in Amsterdam to [earplugs](#) (n = 25) or no earplugs (unprotected group; n = 26). The volunteers were recruited via social media. The primary study outcome was a temporary threshold shift (TTS; a measure of hearing loss) on an audiogram.

The average age of the participants was 27 years. The time-averaged, sound pressure level experienced was 100 dBA during the festival. The authors found that the proportion of participants with a TTS following sound exposure was only 8 percent in the earplug group compared with 42 percent in the unprotected group. In addition, a lower percentage of participants had tinnitus following sound exposure in the earplug group (12 percent vs 40 percent in the unprotected group).

"The present randomized clinical trial [RCT] adds proof to the scarce evidence and knowledge on this topic, which is a growing global problem," the authors write. "This RCT adds evidence that earplugs are effective in preventing temporary hearing loss during high recreational music levels. Therefore, the use of earplugs should be actively promoted and encouraged to avoid noise-induced hearing loss."

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