

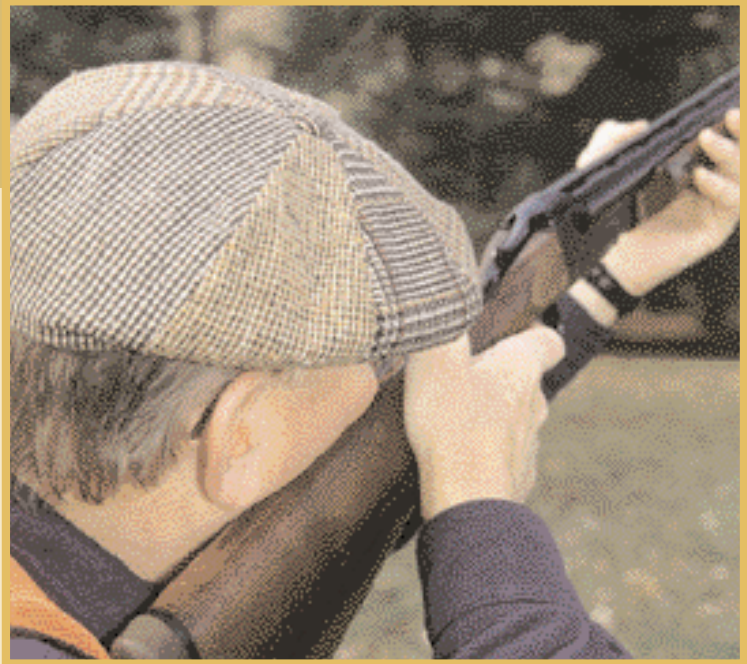
## Hunters and Hearing Loss

Shooters know the sounds of silence as the invasive development of deafness. However, most ears begin life as normal. The ear is sensitive enough to detect changes in pressure equivalent to one-half the diameter of the hydrogen atom.<sup>1</sup> Additionally, the human ear is designed to protect itself during many loud sounds encountered in busy and demanding daily lives. Sounds from shooting, however, are not sounds the ear can withstand.

To illustrate how shooting can result in hearing loss, a survey administered to shooters at a variety of events revealed that when taking results into account from each show, 30 to 71 percent of respondents reported that they are aware that they have hearing loss.<sup>2</sup>

### The Delicate Ear

The ear is comprised of the middle ear and inner ear. The inner ear changes sounds from sound waves to electrical (neural) energy and is very susceptible to damage from loud noises. When the ear experiences sudden, loud sounds or loud, sustained sounds, a temporary shift, or reduction, in hearing normally occurs. Continued exposure to loud noise frequently results in a measurable and permanent reduction in hearing ability. When someone sustains a hearing loss, some sounds may not be as easily heard when the ear recovers from the noise trauma. A person may hear



PHOTOJAY WILEY

some parts of speech well, but hear other parts of speech poorly. For example, a listener may say to a person who has just spoken, "I heard you, but I didn't understand what you said!"

### Irreversible Loss

There are four major factors that result in permanent, non-reversible, hearing loss. The first is the intensity of the sound experienced by the ear. Noise from firearms are extremely loud—when measured in decibels, (dB), the unit of loudness, firearms can reach 140-170 dB, compared to 60 dB for an ordinary conversation.<sup>3</sup>

The second factor that can result in a hearing loss that cannot be reversed is time—a very intense sound for a short duration may create as much damage as a less intense sound for a longer duration of time.

The third factor is the composition of the noise. Shooting, for example, has not one, but many different pitches, or frequencies, ensuring that the ear is exposed to a range of low to high pitches during noise exposure. Finally, the fourth factor is the variations that exist among people for being able to withstand loud sounds. Some people withstand loud noises better than others.

### Preventing Loss

Whether you shoot a rifle, shotgun or pistol, practical solutions for protecting your hearing include earmuffs, earplugs and combination ear and eye safety glasses. All of these are effective devices for preserving hearing, according to Wise Ears!, an effort coordinated by the National Institutes on Deafness and Other Communication Disorders to prevent noise-induced hearing loss.<sup>3</sup>

Be sure to wear the ear protection that is prescribed by your audiologist. Audiologists are professionals who measure hearing sensitivity and hearing processing and prescribe effective forms of ear protection. Additionally, audiologists monitor hearing and detect changes in hearing as people age. Contacting an audiologist in one's community will help to insure that silence does not become an old friend.

### References

1. Brown, J.R. (1981). Are we destroying our hearing? *The Pennsylvania Game News*, 52 (4), 24-25.
2. National Institute on Deafness and Other Communication Disorders. Lessons in shooter safety. Accessed via [www.nidcd.nih.gov/health/wise/shooter.asp](http://www.nidcd.nih.gov/health/wise/shooter.asp)
3. Freehearingtest.com. Hearing Loss Survey: Results Describing Shooters. Accessed via [www.freehearingtest.com/hia\\_survey.shtml](http://www.freehearingtest.com/hia_survey.shtml)

### For More Information

Ball State University  
[www.bsu.edu/news/article/0,137,0,-1019-328,00.html](http://www.bsu.edu/news/article/0,137,0,-1019-328,00.html)

Hear-it  
[www.hear-it.org/page.dsp?forside=yes&area=707](http://www.hear-it.org/page.dsp?forside=yes&area=707)

U.S. Army Training and Doctrine Command  
[www.tradoc.army.mil/casemate/stack/hearing0912.htm](http://www.tradoc.army.mil/casemate/stack/hearing0912.htm)

National Institutes of Health  
<http://forthepublic.nih.gov/newsbulletins/may2003/announcements/id2.htm>