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Fourth of July Fireworks and Hearing Safety*TTUHSC Expert Offers Tips to Protect Against Ear Injuries*

As much as some might enjoy fireworks, the loud popping sounds they produce can contribute to noise induced hearing loss, the second most common type of inner ear hearing loss after age-related hearing loss. In most cases, noise-induced hearing loss develops gradually and can begin at any age. Though some people can be affected with only a momentary exposure to such sounds, noise-induced hearing loss is generally caused by moderate to prolonged exposure to noise levels above 85 decibels. According to **Leigh Ann Reel, Au.D., Ph.D.**, director of the TTUHSC Center for Speech, Language, and Hearing Research, it's important to keep that threshold in mind because the explosive sounds produced by many fireworks can reach 140 to 160 decibels, exceeding levels produced by a jet engine.

To reduce the chances of noise-induced hearing loss from fireworks, Reel suggested:

- View fireworks from no closer than 500 feet to protect the hearing, as recommended by the American Speech-Language-Hearing Association (ASHA). If viewed from less than 500 feet, hearing protection should be worn.
- Avoid the exposure of infants to fireworks in any circumstance, which ASHA also recommends. Sound is amplified when produced in a smaller space, which means loud noises like those produced by fireworks may be more dangerous to an infant's smaller ear canals, putting them at higher risk than adolescents or adults.
- Use appropriate and effective hearing protection for both children and adults. Foam earplugs, generally the least expensive option, are effective when used properly. They are disposable, meant to be used one time and are available in age-appropriate sizes.
- Wear protective earmuffs. While they are more expensive than disposable foam earplugs, earmuffs are a solid hearing protection option and are difficult to use incorrectly. Though not recommended for infants, earmuffs come in different sizes. In fact, if exposing an infant to loud noises like fireworks is unavoidable, appropriately sized protective earmuffs are available.
- Purchase custom earplugs such as those used by people who are exposed to loud noise more frequently than the annual July 4 fireworks show. They require an audiologist to make an impression of the ear and then design a unique plug for that ear.
- People closer to the fireworks, especially those igniting them, should wear earplugs and earmuffs for extra protection.