



Noise

Loud noise can be very damaging to hearing. Both the level of noise and the length of time you listen to the noise can put you at risk for noise-induced hearing loss. Noise levels are measured in decibels, or dB for short. The higher the decibel level, the louder the noise. Sounds that are louder than 85 dB can cause permanent hearing loss. The hearing system can be injured not only by a loud blast or explosion but also by prolonged exposure to high noise levels.

How loud is too loud?

The noise chart below lists average decibel levels for everyday sounds around you.

Painful

150 dB = fireworks at 3 feet

140 dB = firearms, jet engine

130 dB = jackhammer

120 dB = jet plane takeoff, siren

Extremely Loud

110 dB = maximum output of some MP3 players, model airplane, chain saw

106 dB = gas lawn mower, snowblower

100 dB = hand drill, pneumatic drill

90 dB = subway, passing motorcycle

Very Loud

80–90 dB = blow-dryer, kitchen blender, food processor

70 dB = busy traffic, vacuum cleaner, alarm clock

Moderate

60 dB = typical conversation, dishwasher, clothes dryer

50 dB = moderate rainfall

40 dB = quiet room

Faint

AUDIOLOGY Information Series

More information on this topic can be found in our Audiology Information Series [PDF].

30 dB = whisper, quiet library

(Retrieved from www.noisyplanet.nidcd.nih.gov/parents/athome.htm and www.lhh.org/noise/facts/environment.html.)

How can I tell if I am listening to dangerous noise levels?

- You must raise your voice to be heard.
- You can't hear someone 3 feet away from you.
- Speech around you sounds muffled or dull after you leave the noisy area.
- You have pain or ringing in your ears (this is called "tinnitus") after exposure to noise.

How can loud noise damage hearing?

Understanding how we hear will help you to understand how loud noise can hurt your hearing.

One of the most common bad effects of loud noise on hearing is a permanent hearing loss. This happens in the following way:

- The loud sound is collected by the ear as sound waves. The sound waves travel down the ear canal toward the eardrum with enough force to disrupt the delicate hearing system. If the sound is loud enough, it can dislodge the tiny bones of the middle ear.
- The loud sound passes through the middle ear and travels to the inner ear, also known as the cochlea. The tiny hair cells lining this fluid-filled chamber can be damaged as the loud sound reaches the inner ear.
- Only healthy hair cells can send electrical impulses to the brain. It is in the brain that the sound is understood and interpreted. Hair cells damaged by loud sound cannot send the impulse to the brain for interpretation.
- Intense brief noises, like a firecracker or an explosion, can damage hair cells, as can continuous and/or repeated exposure to high levels of noise.
- Once the hair cells are damaged, there is no current treatment to repair them.