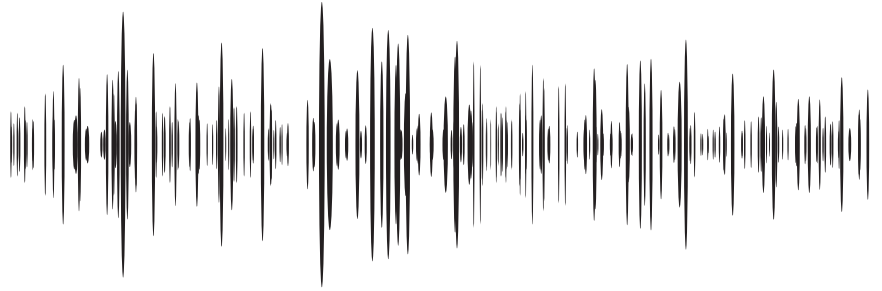


# Noise



## Noise is difficult to define!

One person's music is another person's noise. Sounds that are soothing for some are irritating to others.

People who study sound define noise as complex sound waves with irregular vibrations and no definite pitch. In engineering, noise is defined as a sound signal that interferes with the detection or quality of another sound signal. And still others define noise simply as unwanted sound.

))) **One person's music is  
another person's noise.**

**Sounds that are soothing for some  
are irritating to others.** (((

Noise is one of the most common pollutants. It is often ignored because it is colorless, odorless, and tasteless. And yet it can have negative effects on human well-being.

Is music noise? Is highway traffic noise? Maybe early morning construction falls within your definition of noise. Or do you find lawn mowers and leaf blowers to be noise?

Whatever you define as noise, it can affect your hearing. Listening to loud noise for long periods of time can cause a permanent hearing loss by disrupting the delicate hearing system.

This is called noise-induced hearing loss (NIHL). NIHL happens in the following way:

- The loud sound is collected by the ear as sound waves. The sound travels down the ear canal to the eardrum.
- The loud sound passes through the middle ear into the inner ear, also known as the cochlea. The tiny hair cells lining the fluid-filled cochlea can be damaged by loud sound.
- Only healthy hair cells can send complete electric signals to the brain for interpretation and understanding. If the hair cells are damaged by loud noise, the signals cannot be correctly interpreted by the brain.

- Once hair cells are damaged, there is no current treatment to repair them. The resulting hearing loss is permanent.

## 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 (tinnitus) after listening to loud noise.

## Noise has other negative effects on the human body.

Noise can affect our quality of life. It can hamper our ability to do daily tasks, increase fatigue, and cause irritability. Noisy classrooms can make it harder for all children to learn. Just trying to hold a conversation in a noisy restaurant requires more concentration and energy.

Noise can cause nonhearing changes in the body. It can:

- Increase blood pressure
- Change the way the heart beats
- Disturb digestion
- Contribute to premature birth
- Disrupt sleep

## What can I do to protect myself?

Wearing earplugs or earmuffs to protect your hearing when you know you will be around loud noise can help. But for unexpected loud noise, it is best to limit your listening time in the noisy area. The same applies when listening to loud music (live or through earphones). Keep MP3 players set to no more than half volume. Become a model for good listening behavior to educate your children. Have your hearing tested by an audiologist certified by the American Speech-Language-Hearing Association (ASHA) if you think you may have lost some hearing.

Cell phone apps allow you to measure many different types of noise. You can find out how loud some everyday sounds are—like the noise made by your car, dog, television, or stereo.

All noise levels below are measured in decibels. The decibel is a commonly used measurement of sound pressure level. Sounds that measure 70 dBA or higher are considered dangerous to hearing after 8 hours of listening time.

### **Painful**

150 dBA = fireworks at 3 feet

140 dBA = firearms, jet engine

130 dBA = jackhammer

120 dBA = jet plane takeoff, sirens

### **Extremely loud**

110 dBA = maximum loudness of some MP3 players

106 dBA = gas lawn mower, snowblower

100 dBA = hand drill, pneumatic drill

90 dBA = subway, passing motorcycle

### **Very loud**

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

70 dBA = busy traffic, vacuum cleaner, alarm clock

### **Moderate**

60 dBA = typical conversation, dishwasher, clothes dryer

50 dBA = moderate rainfall

40 dBA = quiet room

### **Faint**

30 dBA = whisper, quiet library

(Retrieved from [www.noisyplanet.nidcd.nih.gov/parents/athome.htm](http://www.noisyplanet.nidcd.nih.gov/parents/athome.htm) and [www.lhh.org/noise/facts/environment.html](http://www.lhh.org/noise/facts/environment.html) on September 24, 2009)

### **NOTES:**

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For more information and to view the entire Audiological Information Series library, visit [www.asha.org/aud/pei/](http://www.asha.org/aud/pei/).

For more information about hearing loss, hearing aids, or referral to an ASHA-certified audiologist, contact:



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