



By Rita Colorito
December 14, 2023

Nuisance Noise

Noise pollution takes a toll on heart health. Learn how to keep your ears — and your heart — safe.

Road traffic, trains, construction — these all make up Chicago’s soundscape. They are also contributors to noise pollution — the buzz of city that can [take a toll on your health](#).

The World Health Organization (WHO) considers noise pollution an underrated health threat, with both short-term and long-term consequences. Among large U.S. cities, Chicago ranks third noisiest.

Besides your hearing, there’s increasing evidence that noise pollution impacts cardiovascular health. Researchers have linked prolonged exposure to noise with an increase in cardiovascular disease, including high blood pressure, heart attack, and stroke.

Noise pollution is just one environmental stressor that people living in densely populated areas already face. This makes the direct health effects of noise pollution on people with heart disease difficult to tease out, says [Micah Eimer, MD, a cardiologist and associate chief medical officer at Northwestern Medicine](#). “Patients who live in high-noise areas may also be in high-pollution areas. They may also be in a socioeconomic class that’s at higher risk of (cardiovascular) events,” Eimer says.

Socially and economically disadvantaged communities, and people who live closer to busy roads and public transportation may be disproportionately impacted. Researchers at the University of Illinois at Chicago found that noise pollution is higher among communities with mid-to-low incomes per capita.

Some of the noise disruption happens at night, which disturbs people’s sleep. And sleep is critical to good health. Traffic noise at night, for example, can interrupt sleep, causing elevated stress hormone levels and increasing oxidative stress — an imbalance of antioxidants and free radicals in your body. Oxidative stress can increase cell and tissue damage, which in turn may lead to chronic illnesses, including heart disease.

Getting enough quality sleep on a regular basis is important for overall health and daily functioning. During normal sleep, your heart rate and blood pressure decrease. This dipping protects your heart against cardiovascular events, such as heart attack and stroke, Eimer says. “A healthy person has dipping during the night while they’re sleeping. Conditions that prevent that dipping from happening are associated with increased risk of cardiovascular events.”

Awareness is key

Protecting yourself from noise pollution starts with being aware of the very loud sounds around you and protecting your hearing, says [Mike Hefferly, PhD, director of the audiology clinic at Rush University Medical Center](#). He says people can use over-the-counter foam earplugs when noise levels nearby are too loud. “They’re an easy and effective way to reduce the stress of the sound on the hearing system,” he says.

But don’t wear earplugs all day, Hefferly adds. “You need to stay aware of your environment for safety. And your brain also need to stay exposed to most everyday sounds that are not considered dangerously loud. If we deprive the brain of too much sound, the brain can start turning up the volume on its own, making sounds that you would otherwise tolerate with little to no problems increasingly difficult to bear.”

Loud noises can also increase your stress, and elevated stress hormone levels can trigger your body’s fight-or-flight response. “The release of stress hormones like adrenaline, which increase heart rate and blood pressure, probably also increase the clotting ability of your blood, making blood clots more likely,” Eimer says. “They also make the lining of the blood vessels less effective at preventing clots as well. That’s just not a healthy place to be for a heart.”

Scientists have also linked noise pollution with mental health issues. Children exposed to chronic noise pollution are at an increased risk for developmental delays and learning deficits. In adults, the Chicago Health and Aging Project, which studied 5,227 adults ages 65 and older in four South Side neighborhoods, found higher long-term exposure to community noise correlated with higher odds of mild cognitive decline and Alzheimer’s disease.

“It’s really a cascading effect,” Hefferly says. “It’s important that we recognize that there’s an impact that goes well beyond just hearing the sound.”

Avoiding excessive noise

To mitigate the health effects of noise pollution, manage your day for sound. “There’s a daily limit as to how much stress we can place on our body, and our ears are no exception,” Hefferly says. “If you’re going to a concert at night, for example, limit your noise exposure during the day. Maybe don’t mow the lawn. Give your ears a chance to be fresh and ready to absorb a little more stress from that venue.”

If you’re moving, keep noise pollution in mind. Pay attention to the noise level near bedrooms. To prevent adverse health effects from nighttime noise, WHO guidelines recommend the night noise level outside of bedrooms be less than 40 decibels (dBA) on average.

To dampen noise pollution where you live, Hefferly recommends carpeting or rugs on the floor and blinds or curtains on the windows. For residents near O’Hare and Midway airports, Chicago’s Residential Sound Insulation Program helps reduce the roar of noise pollution that comes with living near a major air transportation hub. The program may cover measures such as installing new doors and windows, as well as other improvements that reduce sound transmission.

It’s also important to recognize the role you play. Lawnmowers, leaf blowers, and snow blowers all add to noise pollution in your community and impact everyone who lives there.

Safety Levels of Everyday Sounds

Three factors determine how noise impacts your hearing health: Noise level, intensity, and length of exposure. Noise levels are measured in decibels, or dBA. You can safely listen to sounds at 70 dBA — normal conversation level — or lower, as long as you want, according to guidelines from the American Speech-Language-Hearing Association (ASHA). Sounds at 85 dBA can lead to hearing loss if you listen to them for more than 8 hours at a time.

Download a sound meter app on your phone to measure noise levels in any situation. Remember, if it sounds too loud, it probably is. And if you’re speaking with somebody at arm’s length, and you need to raise your voice for them to hear you, it’s too loud, Hefferly says.

Painful impulse noise — not safe for any period of time

150 dBP = fireworks at 3 feet, firecracker, shotgun
140 dBP = firearms

Painful steady noise — not safe for any period of time

130 dBA = jackhammer
120 dBA = jet plane takeoff, siren, pneumatic drill

Extremely loud — dangerous to hearing; wear earplugs or earmuffs

112 dBA = maximum output of some MP3 players, rock concert, chainsaw
106 dBA = gas leaf blower, snow blower
100 dBA = tractor, listening with earphones
94 dBA = hair dryer, kitchen blender, food processor

Very loud — dangerous to hearing; wear earplugs or earmuffs

91 dBA = subway, passing motorcycle, gas mower

Moderate — safe listening for any time period

70 dBA = group conversation, vacuum cleaner, alarm clock
60 dBA = typical conversation, dishwasher, clothes dryer
50 dBA = moderate rainfall
40 dBA = quiet room

Faint — safe listening for any time period

30 dBA = whisper, quiet library

By Rita Colorito

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