

**SOUND information**  
for your hearing health

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## Sound of Silence: The Causes and Cures of Sudden Hearing Loss

Though sometimes no cause for alarm, ear infections do have the potential to cause a temporary or reversible hearing loss. This usually occurs because these infections block sound from passing through some part of the ear — better known as conductive hearing loss — making sounds that are normally easy to hear temporarily muffled or quiet. Occasionally, more serious conditions can cause a sudden sensorineural hearing loss (SSHL), or sudden deafness. Although tests can usually properly diagnose the difference, it is particularly important for the individual to act quickly to prevent permanent damage from this medical emergency.



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Ear infections vary in intensity and scope, and they can occur in any of the three parts of the ear: outer ear, middle ear, or inner ear.

- **Outer-ear infections:** The ear canal becomes inflamed or infected due to bacteria. Blockage may occur, preventing sound from moving through the ear canal, but hearing usually returns after the infection is gone.
- **Middle-ear infections:** Swelling or pus forms in the middle ear, blocking sound from moving to the inner ear. Hearing usually returns after the infection goes away, but untreated middle-ear infections can cause damage that results in permanent hearing loss. Most infections resolve on their own, but an antibiotic regimen can expedite the healing process.
- **Inner-ear infections:** Also known as labyrinthitis, inner-ear infections typically have an immediate onset of severe vertigo, nausea/vomiting from imbalance, and loss of hearing in higher frequency ranges. A virus or bacteria is the primary cause, and recovery may take several weeks or months. Most patients will make a complete recovery.

Another less common infection, mastoiditis, can cause persistent conductive hearing loss. **Mastoiditis** is a bacterial infection of the mastoid bone, which consists of air pockets that help drain the middle ear. Mastoid cells become infected or inflamed as a result of an unresolved middle-ear infection, and if the infection spreads, the resulting health complications can be severe. Chronic mastoiditis sufferers face an ongoing infection of the middle ear and mastoid, which causes persistent drainage from the ear. The disease is usually resolved via oral antibiotics, eardrops, regular ear cleanings, or surgery, if necessary.

Mastoiditis displays two symptoms that make it fairly easy to identify: a swelling of the earlobe and redness/tenderness behind the ear. In some cases, there may be a bulging or drooping of the ear. Fever, irritability, and lethargy are other symptoms. Left untreated, mastoiditis can cause hearing loss, a blood clot, meningitis, or a brain abscess. However, early treatment usually means a full recovery.

These diseases usually don't cause sudden hearing loss, but they should often be treated as a medical emergency because of how dangerous relative infections can be. The approximately **4,000 new cases of SSHL each year in the U.S. can affect anyone but happen most often to individuals between the ages of 30 and 60.** There are more than 100 possible causes, including head trauma, abnormal tissue growth, immunologic diseases like Cogan's syndrome, toxic causes, ototoxic drugs, circulatory problems, neurologic causes, and Ménière's disease. But one that has gained traction among medical professionals is the idea of a viral infection that affects the cochlea and causes sudden hearing loss. In these cases, hearing may completely return, may partially return, or may not return at all.

Sudden deafness can occur all at once or over a period of up to three days. A doctor can determine SSHL with a normal hearing test; a loss of at least 30 decibels in three connected frequencies equates to a diagnosis of SSHL. Nine in 10 people who experience SSHL are affected in only one ear, and many people notice it when they wake up in the morning or try to use the deafened ear and realize it's not working. Others notice a loud "pop" just before their hearing disappears, and they often experience dizziness, tinnitus, or both after SSHL occurs.

It is important that a medical specialist is seen within the first 48 hours of experiencing SSHL to ensure a complete recovery. Some patients recover completely without medical intervention within the first three days (referred to as a spontaneous recovery), while others recover over a one- or two-week period. In most cases, a good to excellent recovery is likely, but 15 percent of those who experience SSHL note that their hearing loss gets worse over time.

**Two factors that help hearing function properly are good airflow and blood flow inside the ear;** research now indicates that SSHL occasionally occurs when important parts of the inner ear do not receive enough oxygen. A treatment of carbogen — a mixture of carbon dioxide and oxygen — seems to help air and blood flow in the ears of some patients when inhaled. But the most common treatment for SSHL in which there is no known cause is steroids, which reduce inflammation and help the body fight whatever illness is causing the SSHL. Steroids are particularly effective in those with SSHL who also have conditions that affect the immune system.

Hearing can evaporate quickly over the course of only a few days and never return. Stressing a prompt examination with treatment by medical specialists can prevent this permanent hearing loss, and can keep our local community happy and healthy. ■