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## SENSORINEURAL HEARING LOSS (SNHL)

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Hearing loss can be broadly separated into two categories: conductive (problems in delivering sound to the inner ear) and sensorineural (problems of the inner ear, or cochlea, and/or the auditory nerve that connects the inner ear to the brain). Sensorineural hearing loss (SNHL) happens when there is damage to tiny hair cells in the cochlear and/or the auditory nerve. In children, the most common causes of SNHL include inner ear abnormalities, genetic variations, jaundice (or a yellowing of the skin or whites of the eyes), and viral infection from the mother during pregnancy. In adults, SNHL is most commonly caused by aging, exposure to loud noises, head trauma, or other conditions.

### WHAT ARE THE SYMPTOMS OF SNHL?

Symptoms of SNHL may include:

- Muffled hearing
- Difficulty understanding speech
- Sudden or steady loss of hearing
- Full or “stuffy” sensation in the ear
- Ringing in the ear
- Dizziness

### WHAT CAUSES SNHL?

SNHL happens when there is damage to tiny hair cells in the cochlear and/or the auditory nerve. Sound energy reaches the cochlea, but damaged hair cells are unable to convert sound waves into neural signals that pass through the auditory nerve to the brain. Auditory nerve abnormalities will also cause SNHL. Other causes may include:

- *Sudden hearing loss*—caused by a virus; you should see an ENT (ear, nose, and throat) specialist, or otolaryngologist, for urgent treatment that could help recover some hearing

- *Aging*—gradual SNHL that cannot be reversed (most common)
- *Acoustic trauma*—exposure to loud noises (e.g., industrial/machinery or explosion/gunfire close to the ear; can be prevented with proper protection)
- *Head trauma or abrupt changes in air pressure*—this can cause the space that contains inner ear fluid to rupture
- *Autoimmune inner ear disease*—the body’s immune system attacks the inner ear and causes progressive hearing loss in both ears
- *Ménière’s disease*—a condition characterized by fluctuating hearing loss, dizziness, ear fullness, or ringing in the ears (called tinnitus)
- *Central nervous disease*—damage caused by a condition such as multiple sclerosis
- *Cochlear otosclerosis*—abnormal bone growth in the inner ear
- *Congenital inner ear malformation*—genetic or environmental abnormalities (very common cause in children)
- *Benign tumor*—called “vestibular schwannoma,” this is a noncancerous tumor on the adjacent balance nerve that compresses the hearing nerve that connects the inner ear to the brain, causing SNHL

### WHAT ARE THE TREATMENT OPTIONS?

If you are experiencing hearing loss, you should see an ENT specialist who can make the correct diagnosis. This is important because the treatment for hearing loss depends on the cause. Once a diagnosis is made, your physician will be able to talk to you about all treatment options. A critical part of the evaluation will be a hearing test (audiogram) performed by an audiologist

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to determine the severity of your hearing loss, as well as whether it is conductive, sensorineural, or a combination of both.

Your ENT specialist may recommend specific treatment options based on the results of your hearing test, or other potential tests such as a CT or MRI imaging scan. Treatment options can include:

- Continuing observation with repeated hearing tests
- *Medical therapy*—corticosteroids (oral or injection through the eardrum) may be used to reduce cochlear hair cell swelling and inflammation after exposure to loud noises; diuretics may be used for Ménière's disease
- Low-sodium diet
- Evaluation and fitting of a hearing aid(s) or other assistive listening devices
- Preferential seating in class for school children
- Surgery to correct the cause of the hearing loss
- Surgery to implant a hearing device

SNHL can be treated with the use of conventional hearing aids or an implantable hearing device. Again, your ENT specialist and/or audiologist can help you decide which device may work best for you depending on your hearing test results and your lifestyle.

### **WHAT QUESTIONS SHOULD I ASK MY DOCTOR?**

1. What is the cause of my hearing loss?
2. Will my hearing loss likely get worse with time?
3. What are my treatment options?
4. What are the risks of the surgery you are recommending?
5. Do you do this surgery frequently?