

# Single-Sided Deafness (SSD)

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## What is single-sided deafness (SSD)?

**Single-sided deafness (SSD)** is profound hearing loss (little to no sound awareness) in one ear and normal hearing in the other. It can be **congenital** (present at birth), happen over time, or happen suddenly in adulthood. It can be caused by many different factors.

Patients with SSD usually have problems with sound awareness, understanding speech (talking) when there is background noise, and figuring out where sound is coming from. People with SSD often have **tinnitus** (ringing or other noises not caused by an external source). People with SSD may also have **vestibular** (balance) problems.

## What can cause SSD?

For children, common causes of SSD are:

- Cytomegalovirus
- Enlarged vestibular aqueduct
- Inner ear malformations
- Cochlear nerve deficiency and narrow IAC

For adults, common causes of SSD are:

- Sudden hearing loss from viral or bacterial infections
- Trauma (injury)
- Meniere's disease
- Acoustic neuroma

## How is SSD diagnosed?

- An **audiologist** (a doctor specializing in diagnosing and treating hearing loss) will do a hearing test with you to understand the type of hearing loss you have, how well you can hear, and how much hearing loss you may have.
- To figure out the cause of your SSD, a medical professional - typically an **otolaryngologist** (an ear, nose, and throat doctor, or ENT) - will use imaging tests, such as an MRI and CT scan, to look at the structures of your ear.

## How is SSD treated?

If your hearing loss is sudden, you may be treated with medication. This often includes steroids that you take by mouth (oral) or by injection into your ear (intratympanic). Medications are most effective if you are treated within 2 weeks of when your hearing loss starts. You will have more hearing tests to measure any change in hearing after treatment. If your hearing loss progresses (gets worse) over time, your ENT will order imaging tests to see if there is a structural cause for this change in hearing.

There are several options to help improve hearing for single-sided deafness. These options can be sorted into 2 groups: devices that will use your normal hearing ear and devices that will work directly on your affected ear (the ear that has SSD).

- Options that place microphones on the affected side and send sound over to your normal hearing ear include:
  - **Contralateral routing of signal (CROS)** hearing aid system: This option wirelessly sends sounds from a microphone placed on the affected ear to a receiver placed in your normal hearing ear. It does not involve surgery.

- **Bone conduction devices (BCD):** These devices are placed on your affected ear and they send sound vibrations through your skull to your normal hearing ear. These devices can be placed without surgery, by putting the device on a headband you wear, or placed by surgery.
- **Cochlear implantation** is an option that works directly on your affected ear by skipping the damaged parts of your inner ear and sending sound signals to your brain through your hearing nerve.
  - There are different factors that affect outcomes for patients who get a cochlear implant for SSD. It includes your duration of deafness (how long you have had this hearing loss). Cochlear implants usually don't work as well for patients with many years of deafness compared to patients who had a sudden hearing loss more recently. Your audiologist will explain more about what makes someone a good cochlear implant candidate for SSD. They will do a booth hearing test and give a recommendation to you.
  - Sometimes insurance companies will not cover cochlear implants for SSD. Your audiologist can give you more information about whether your insurance might cover a cochlear implant.

### **How do I figure out which SSD treatment option is best for me?**

A formal SSD evaluation includes booth testing and other measures to understand which management option is best for you. This evaluation will have you repeat words and sentences while using test devices, to see if they might help you before you move forward with surgery or buying the device system. If you are interested in learning more about your device options, schedule an SSD evaluation with our audiologists.

## Where can I find more information and resources about hearing loss?

### American Speech-Language-Hearing Association

- List of hearing loss organizations:  
[www.ASHA.org/public/hearing/hearing-loss-organizations-and-associations](http://www.ASHA.org/public/hearing/hearing-loss-organizations-and-associations)



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